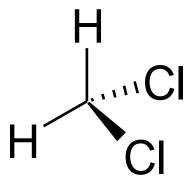
Final Risk Evaluation for Methylene Chloride

Systematic Review Supplemental File:

Data Quality Evaluation of Environmental Releases and Occupational Exposure Data

CASRN: 75-09-2



June 2020

This document is a compilation of tables for the data extraction and evaluation for Methylene Chloride (Dichloromethane, DCM). Each table shows the data point or set or information element that was extracted and evaluated from a data source in accordance with Appendix D of the Application of Systematic Review in TSCA Risk Evaluations. If the source contains more than one data set or information element, the review provides an overall confidence score for each data set or information element that is found in the source. Therefore, it is possible that a source may have more than one overall quality/confidence score.

Table of Contents

	Page
Releases to the Environment	3
Occupational Exposure	57
Facility	366

Explanatory Notes

These explanatory notes provide context to understand the short comments in the data evaluation tables.

Domain	Metric	Description of Comments Field				
Reliability	Methodology	Indicates the sampling/analytical methodology, estimation method, or type of publication				
Representativeness	Geographic Scope	Indicates the country of the study, publication, or underlying data				
	Applicability	Indicates whether the data are for a condition of use within scope of the Risk Evaluation				
	Temporal Representativeness	Provides the year of study, publication, or underlying data				
	Sample Size	Describes the distribution of the sample or underlying data				
Accessibility / Clarity	Metadata Completeness	Describes the completeness of the metadata				
Variability and Uncertainty	Metadata Completeness	Indicates if study or publication addresses variability and uncertainty of the data or information				

Releases to the Environment

Source Citation: Type of Data Source Hero ID		ic release inventory: Dichloro-me o the Environment; Environmen		Data;			
EXTRACTION Parameter			Data				
Life Cycle Stage: Release Source: Environmental M Release Estimatio Annual Release G	n Method:	/yr):	Reported 135,396 ll fills, 54 ll 1,607,512	b/yr to C b/yr to c lb/yr fro	se estimates for UI, landfills, fugitive air, surface water. To Class I Wells; 16,212 lb/yr to RCRA Subtitle C lander to other on-site landfills; 1,346,811 lb/yr to fugitive air; yr from point sources; 24,567 lb/yr to surface water; 2,677 r land disposal.		
EVALUATION Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	EPA Source	
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 2 1	US Overal releases 2014 Direcly reported data to EPA	
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	Data provided by site on an annual basis only	
Domain 4: Variab	oility and Un Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty	
Overall Quality D	eterminatio	${f n}^\dagger$	Medium		1.7		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	Chemistry Industry Association of, Canada. 2017. All substances emissions for 2012 and projections for 2015. Releases to the Environment; Environmental Release Data; 3982361								
EXTRACTION Parameter			Data						
Life Cycle Stage: Environmental Med Release Estimation Annual Release Qu Number of Sites:	Method:	/yr):	Processing not specified Estimated 0 tonnes/yr						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabil	ity Metric 1:	Methodology	Low	× 1	3	not specified			
Domain 2: Represe			3.5.31						
	Metric 2:	Geographic Scope	Medium	× 1	2	Canada			
	Metric 3: Metric 4:	Applicability	Medium	$\times 2$	4	Warehouse			
	Metric 4: Metric 5:	Temporal Representativeness Sample Size	High Low	$\times 2 \times 1$	$\frac{2}{3}$	2012			
	metric 9:	Sample Size	LOW	× 1	ა	no sample size data			
Domain 3: Accessib	bility/Clari	tv							
	Metric 6:	Metadata Completeness	${\bf Unacceptable}$	\times 1	4	no media of release			
D ' 4 37 ' 1''	1.4								
Domain 4: Variabil		•	T	v. 1	9	N			
	Metric (:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality De	termination	\mathbf{n}^{\dagger}	Unacceptable		4	Metric Mean Score: 2.3.			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Chemistry Industry Association of, Canada. 2017. All substances emissions for 2011 and projections for 2014.								
· ·	Releases to the Environment; Environmental Release Data; 3982362								
	0902302								
EXTRACTION Parameter			Data						
- rarameter			Data						
Life Cycle Stage:			Processing/Use	Э					
Environmental Med	lia:		not specified						
Release Estimation			Estimated						
Annual Release Qua	antity (kg/	/yr):	0.02 tonnes/yr						
Number of Sites:			3						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabili	tsz								
	Metric 1:	Methodology	Low	× 1	3	not specified			
Domain 2: Represer	ntativo								
<u>*</u>	Metric 2:	Geographic Scope	Medium	× 1	2	Canada			
	Metric 3:	Applicability	Medium	$\times 2$	4	Warehouse; industrial site(s)			
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2011			
	Metric 5:	Sample Size	Low	\times 1	3	no sample size data			
Domain 3: Accessib	:1:4 /Cloni	4							
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	no media of release			
	wietiic o.	Metadata Completeness	Chacceptable	^ 1	4	no media of felease			
Domain 4: Variabili	ity and Un	certainty							
		Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Det	termination	n [†]	Unacceptable		4	Metric Mean Score: 2.3.			
- 0			-						

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

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Source Citation: Osha,. 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.								
	o the Environment; Reports for	Data or I	nformati	on Othe	er than Exposure or Release Data;			
EXTRACTION Parameter		Data						
rarameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subc	ategory of Use):	Polyure	thane for	am man	ufacturing			
Release Source:		Polyure	thane for	am man	ufacturing			
Environmental Media:		air						
Release or Emission Factor:		1						
Release Estimation Method:		Estimat	ted					
EVALUATION								
		-		~				
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Sec-			
					tion			
Domain 2: Representative								
Metric 2:	Geographic Scope	High	× 1	1	US			
Metric 3:	Applicability	High	$\times 2$	2	Polyurethane foam manufacturing			
Metric 4:	Temporal Representativeness	Low	× 2	6	1997			
Metric 5:	Sample Size	Low	× 1	3	no sample size data			
Domain 3: Accessibility/Clar	•							
Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media			
Domain 4: Variability and U	ncertainty							
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
	F · · · ·	**		-	v			
Overall Quality Determination	on^\dagger	Low		2.3				
, ,								

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.								
• •	o the Environment; Reports for	Data or I	nformati	on Othe	er than Exposure or Release Data;			
Hero ID 3978297								
EXTRACTION		.						
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subc	ategory of Use):	Paint S	tripping					
Release Source:	,		tripping					
Environmental Media:		air	0					
Release or Emission Factor:		1						
Release Estimation Method:		Estimat	ted					
EVALUATION								
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliability	25.1.1.1	т.						
Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section			
Domain 2: Representative	G 1. G	*** 1	_	_				
Metric 2:	Geographic Scope	High	$\times 1$	1	US			
Metric 3:	Applicability	High	$\times 2$	2	Paint Stripping			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997			
Metric 5:	Sample Size	Low	× 1	3	no sample size data			
Domain 3: Accessibility/Clar	ity							
Metric 6:	Metadata Completeness	Low	\times 1	3	only includes release media			
Domain 4: Variability and Un								
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
	+			-				
Overall Quality Determination	on '	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha, 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.									
Hero ID 3978297									
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Process	ing						
Life Cycle Description (Subc	ategory of Use):		Recover	У					
Release Source:	,		Recover						
Environmental Media:		air							
Release or Emission Factor:		<1 per	cent						
Release Estimation Method:		Estimat	ted						
EVALUATION									
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
Domain 1: Reliability	26 (1 1 1	т.							
Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section				
Domain 2: Representative	~	*** 1	_	_					
Metric 2:	Geographic Scope	High	$\times 1$	1	US				
Metric 3:	Applicability	High	$\times 2$	2	Solvent Recovery				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997				
Metric 5:	Sample Size	Low	× 1	3	no sample size data				
Domain 3: Accessibility/Clar	itv								
Metric 6:	Metadata Completeness	Low	\times 1	3	only includes release media				
Domain 4: Variability and Un									
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
	+			-					
Overall Quality Determination	n'	Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

·									
	, 1								
V 2	Type of Data Source Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data; Hero ID 3978297								
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Manufa	oturo						
Life Cycle Description (Sub	category of Use)		cture of	DCM					
Release Source:	category or obe).		cture of	-					
Environmental Media:		air		20111					
Release or Emission Factor:		<1 per	cent						
Release Estimation Method	:	Estima	ted						
EVALUATION									
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
D D !! . ! !!									
Domain 1: Reliability	Mada alala	т	× 1	9					
Metric 1	: Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section				
Domain 2: Representative	G 1: G	TT: 1	-						
Metric 2 Metric 3	- 1.8 ·I	High	× 1	1	US				
Metric 3	T T	High Low	$\times 2 \times 2$	2 6	Manufacture of DCM 1997				
Metric 5		Low	× 2 × 1	3	no sample size data				
Metric 9	. Sample Size	LOW	× 1		no sampie size data				
Domain 3: Accessibility/Cla	arity								
Metric 6	: Metadata Completeness	Low	\times 1	3	only includes release media				
Domain 4: Variability and		т	1	0					
Metric 7	: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Organill Orgality Data	ion†	T		9.9					
Overall Quality Determinat	1011	Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

0 1	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID 398	2430								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description	(Subca	tegory of Use):		thane Fo	am Blo	wing			
Release Source:	(Subca	legory or ese).		thane Fo					
Environmental Media:			air	0110110 1 0	WIII 210	8			
Release or Emission Fa			1						
Release Estimation Me	ethod:		Estimat	ed					
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
D ' 1 D !' ! !!'									
Domain 1: Reliability	tric 1:	Methodology	Low	× 1	3	OCHA B I B I			
	tric 1:	Methodology	LOW	X 1	- J	OSHA - Proposed Rules			
Domain 2: Representa	tive								
	tric 2:	Geographic Scope	High	\times 1	1	US			
Met	tric 3:	Applicability	High	$\times 2$	2	Polyurethane Foam Blowing			
Met	tric 4:	Temporal Representativeness	Low	$\times 2$	6	1997			
Met	tric 5:	Sample Size	Low	× 1	3	no sample size data			
Domain 2. Agazz-il-ilit	/Cls								
Domain 3: Accessibilit	tric 6:	Metadata Completeness	Low	× 1	3	only includes release media			
Med	unc o.	Wetadata Completeness	LOW	X 1	<u>.</u>	only includes release media			
Domain 4: Variability	and Ur	ncertainty							
	tric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
Overall Quality Determ	minatio	${f n}^{\dagger}$	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha, 1991. Proposed rules: Occupational exposure to methylene chloride.								
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID	3982430								
EXTRACTION									
Parameter			Data						
Tif G 1 G			**						
Life Cycle Stage:	(C 1	()	Use						
Life Cycle Descrip Release Source:	otion (Subca	ategory of Use):	Aerosol						
Environmental M	- 4:		Aerosola	S					
Release or Emissi					no oleino	m. 100 managet release during consumer use			
Release Estimatio			Estimat	_	раски	g; 100 percent release during consumer use			
Release Estimatio	m Method:		Estimat	ea					
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
-									
Domain 1: Reliab	ility								
-	Metric 1:	Methodology	Low	\times 1	3	OSHA - Proposed Rules			
Domain 2: Repres	antatira								
Domain 2: Repres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 2.	Applicability	High	$\times 1 \times 2$	2	Aerosols			
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	1997			
	Metric 5:	Sample Size	Low	$\stackrel{\wedge}{\times} \stackrel{2}{1}$	3	no sample size data			
	Medic 5.	Sample Size	LOW	^ 1		no sample size data			
Domain 3: Access	sibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	\times 1	3	only includes release media			
D	.1 1 **								
Domain 4: Variab	-		т	1	0				
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Organall Ouglitus D	\atamoin a +: -	†	T		0.2				
Overall Quality D	eterminatio	n'	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha, 1991. Proposed rules: Occupational exposure to methylene chloride.								
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID	3982430								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:	(0.1		Use						
Life Cycle Descrip	otion (Subca	itegory of Use):		bonate F					
Release Source:	1.			bonate F	Resin				
Environmental Me			air	00.11./					
Release or Emission				00 lb/yr 1	released				
Release Estimatio	n Method:		Estimat	ted					
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain		Metric	Rating	IVI VV F	Score	Comments			
Domain 1: Reliab	ility								
Bolliam 1. Itelias	Metric 1:	Methodology	Low	\times 1	3	OSHA - Proposed Rules			
		3.0							
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Polycarbonate Resin			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997			
	Metric 5:	Sample Size	Low	× 1	3	no sample size data			
Domain 3: Access	sibility/Clar	itv							
Domain o. Access	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
	<u> </u>			<u></u>					
Overall Quality D	eterminatio	${f n}^{\dagger}$	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		91. Proposed rules: Occupationa								
Type of Data Source		the Environment; Reports for	Data or I	nformati	on Othe	er than Exposure or Release Data;				
Hero ID	3982430									
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Process	ing						
Life Cycle Descrip	otion (Subca	ategory of Use):		ng ceuticals						
Release Source:	otion (bubec	negory or obe).		Pharmaceuticals						
Environmental M	edia:		air							
Release or Emissi	on Factor:		43 perce	ent releas	sed and	57 percent recovered and processed for use				
Release Estimation	on Method:		Estimat							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1. Daliah	:1:4									
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules				
	Wictific 1.	Wiethodology	Low	/\ 1	- 0	Oblin - Froposed remes				
Domain 2: Repres	sentative									
•	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Pharmaceuticals				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997				
-	Metric 5:	Sample Size	Low	\times 1	3	no sample size data				
Domain 3: Access	eibility/Clar	ity								
Domain o. Access	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media				
Domain 4: Variab	oility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty				
				<u></u>						
Overall Quality D	eterminatio	$ m n^\dagger$	Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 19	91. Proposed rules: Occupationa	l exposur	e to met	hylene c	chloride.				
v 2	o the Environment; Reports for	Data or I	nformati	on Othe	er than Exposure or Release Data;				
Hero ID 3982430									
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Use	10						
Life Cycle Description (Subc	ategory of Use):		Paints and Coatings Paints and Coatings						
Release Source:			and Coat	ings					
Environmental Media:		air							
Release or Emission Factor:		1	1						
Release Estimation Method:		Estimat	ea						
EVALUATION									
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
Domain 1: Reliability									
Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules				
Domain 2: Representative									
Metric 2:	Geographic Scope	High	\times 1	1	US				
Metric 3:	Applicability	High	$\times 2$	$\stackrel{-}{2}$	Paints and Coatings				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997				
Metric 5:	Sample Size	Low	× 1	3	no sample size data				
Domain 3: Accessibility/Clar									
Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media				
Domain 4: Variability and U	ncertainty								
Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty				
Overall Quality Determination	on^\dagger	Low		2.3					
•									

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa				
Type of Data Source Hero ID	Releases to 3982430	the Environment; Reports for	Data or I	nformati	on Othe	er than Exposure or Release Data;
	3982430					
EXTRACTION Parameter			Data			
1 arameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descript	tion (Subca	ategory of Use):	Cellulos	se Triacet	tate and	l Film Base Production
Release Source:			Cellulos	se Triacet	tate and	l Film Base Production
Environmental Me			air			
Release or Emissio			4,500,00	, -		
Release Estimation	n Method:		Estimat	ed		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabil	1;+					
	Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
-		3.0				•
Domain 2: Represe	entative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Cellulose Triacetate and Film Base Production
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessi	hility/Cless	itaz				
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
	TVICUITE U.	metadata Compreteness	LOW	^ 1		omy menudes release media
Domain 4: Variabi	lity and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty
Overall Quality De	eterminatio	${f n}^{\dagger}$	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Type of Data Source Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;							
EXTRACTION Parameter		Data						
Life Cycle Stage: Life Cycle Description (Subca Release Source: Environmental Media: Release or Emission Factor: Release Estimation Method:	Use Electron Electron air 1 Estimat	nics						
EVALUATION Domain	Metric	Datina	MWF*	Score	Comments			
Domain	Metric	Rating	MWF	Score	Comments			
Domain 1: Reliability Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules			
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low Low	× 1 × 2 × 2 × 1	1 2 6 3	US Electronics 1997 no sample size data			
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness		Low	× 1	3	only includes release media			
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †				2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.
Type of Data Source		the Environment; Completed I	Exposure or	Risk As	sessmen	ats;
Hero ID	3809449					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Manufact	uro		
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact		CM	
Release Source:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Manufact			
Environmental M	Environmental Media:					
Release or Emissi	on Factor:		<1 percer	nt compa	red to t	he use of DCM in 1995
Release Estimation	on Method:		Estimated	ł		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1;+					
Domain 1. Renau	Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
-						
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	OECD
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1995
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Access	sibility/Clar	itv				
Domain 6. Meess	Metric 6:	Metadata Completeness	Low	\times 1	3	only includes release media
-		-				
Domain 4: Variab	-					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
		+			2.2	
Overall Quality D	eterminatio)	n'	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Releases to the Environment; Completed Exposure or Risk Assessments; 3809449							
EXTRACTION								
Parameter			Data					
Life Cruele Chame			Use					
į	Life Cycle Stage: Life Cycle Description (Subcategory of Use):							
Release Source:	ı (Subca	ntegory of Ose):	Paint Stri Paint Stri					
Environmental Media					ir: 10 1	5 percent to waste		
Environmental Media:			00-90 per	cent to a	11, 10-1	percent to waste		
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
D 1 1 D 1: 1:1:4								
Domain 1: Reliability	etric 1:	Methodology	Medium	× 1	9	D. C		
IVI	etric 1:	Methodology	Medium	X 1	2	Refers to Tukker et al. 1995		
Domain 2: Represent	ative							
	etric 2:	Geographic Scope	Medium	$\times 1$	2	OECD		
M	etric 3:	Applicability	High	$\times 2$	2	Paint Stripping		
M	etric 4:	Temporal Representativeness	Low	$\times 2$	6	1991		
M	etric 5:	Sample Size	Low	\times 1	3	no sample size data		
D : 0 A :111	/ 61	•.						
Domain 3: Accessibil	. ,	·	_	-				
M	etric 6:	Metadata Completeness	Low	× 1	3	only includes release media		
Domain 4: Variability	z and Ur	ncartainty						
•	7 and 01 etric 7 :	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
			2011	/\ I		1.0 discussion of variability of anorthality		
Overall Quality Deter	minatio	\mathbf{n}^{\dagger}	Low		2.3			
Overan Quanty Deter	. 1111111111010	11	±0₩		۵.5			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.
Type of Data Source		the Environment; Completed I	Exposure or	Risk As	sessmen	ts;
Hero ID	3809449					
EXTRACTION			ъ.			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Adhesives	3		
Release Source:		,	Adhesives	3		
Environmental M	edia:		air			
Release or Emissi	on Factor:		1			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1:+					
Domain 1. Renau	Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
-		0.22422 0.2263			_	
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	Medium	\times 1	2	OECD
	Metric 3:	Applicability	High	$\times 2$	2	Adhesives
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1995
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Access	sibility /Class	:+				
Domain 5: Access	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
	WICUIE O.	Wetadata Completeness	LOW	× 1	- 0	only includes release media
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty
			<u> </u>	·		
Overall Quality D	eterminatio	n^{\dagger}	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source		9. Methylene chloride: Advantag o the Environment; Completed I				ble Market Restrictions in the EU.
Hero ID	3809449					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Aerosols			
Release Source:			Aerosols			
Environmental Mo	edia:		air			
Release or Emission	on Factor:		1			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Medium	× 1	2	European Commission Report
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	OECD
	Metric 3:	Applicability	High	$\times 2$	2	Aerosols
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	unknown
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Access	sibility/Clar	itv				
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination [†]			Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Cno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Releases to the Environment; Completed Exposure or Risk Assessments; 809449							
EXTRACTION									
Parameter			Data						
Life Cycle Stage: Life Cycle Descrip Release Source: Environmental M	Use Pharmaceuticals Pharmaceuticals 55 percent to air; 44 percent discharge with waste; 1 percent to water								
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliab	ility Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995			
Di 0- D	4-4:								
Domain 2: Repres	Metric 2:	Geographic Scope	Medium	× 1	2	OECD			
	Metric 3:	Applicability	High	\times 1 \times 2	$\frac{2}{2}$	Pharmaceuticals			
	Metric 4:	Temporal Representativeness	Low	$\times 2 \times 2$	6	1995			
	Metric 5:	Sample Size	Low	× 1	3	no sample size data			
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	only includes release media			
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]			Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID). Methylene chloride: Advantag o the Environment; Completed I				ole Market Restrictions in the EU. nts;
EXTRACTION Parameter			Data			
Life Cycle Stage: Life Cycle Descrip	otion (Subca	ategory of Use):	Use Other che PUR)	emical pr	rocessing	g (solvent in polycarbonate; blowing agent in
Release Source:			,	emical pr	cocessing	g (solvent in polycarbonate; blowing agent in
Environmental Media:			,	nt to wat	er; 64.8	percent to air; 35 percent to waste
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
Domain 2: Repres	sentative					
	Metric 2: Metric 3:	Geographic Scope Applicability	Medium High	$\times 1 \times 2$	2 2	OECD Other chemical processing (solvent in polycarbonate; blowing agent in PUR)
	Metric 4:	Temporal Representativeness	Low	\times 2	6	1995
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Access	sibility/Clar	itv				
	Metric 6:	Metadata Completeness	Low	\times 1	3	only includes release media
Domain 4: Variab					-	
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality D	eterminatio	${f n}^{\dagger}$	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source R	Yno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. deleases to the Environment; Completed Exposure or Risk Assessments; 809449							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description (Subcategory of Use):			Degreasin	g				
Release Source:			Degreasin	_				
Environmental Media:			0.3 percer	nt to wat	er; 57.7	percent to air; 42 percent to waste		
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
D : 1 D !: 1 !!!								
Domain 1: Reliabilit	•	M-41 1-1	M - 1!	1	0	D. C		
N	Metric 1:	Methodology	Medium	× 1	2	Refers to van der Most 1993		
Domain 2: Represen	tative							
•	letric 2:	Geographic Scope	Medium	$\times 1$	2	OECD		
Ν	Ietric 3:	Applicability	High	$\times 2$	2	Degreasing		
N	Ietric 4:	Temporal Representativeness	Low	$\times 2$	6	1993		
N	letric 5:	Sample Size	Low	× 1	3	no sample size data		
Domain 3: Accessibi	ilitr:/Clani	+						
	Inty/Clari Ietric 6:	Metadata Completeness	Low	× 1	3	only includes release media		
Domain 4: Variabilit		•						
N	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
Overall Quality Determination †		Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	no,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. eleases to the Environment; Completed Exposure or Risk Assessments; 809449							
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subo	Food extr	action						
Release Source:			action					
Environmental Media:		100 perce	ent to air	•				
ENALLIAMION								
EVALUATION	26.4	D (:	MMM7D+	C.				
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Metric 1:	Methodology	Medium	× 1	2	Refers to UBA 1991			
Domain 2: Representative								
Metric 2:	Geographic Scope	Medium	× 1	2	OECD			
Metric 3:	Applicability	High	$\times 2$	$\frac{1}{2}$	Food extraction			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1991			
Metric 5:	Sample Size	Low	$\times 1$	3	no sample size data			
Domain 3: Accessibility/Cla	rity							
Metric 6:	Metadata Completeness	Low	$\times 1$	3	only includes release media			
Domain 4. Variability and I	neortointy							
Domain 4: Variability and U Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
	*							
Overall Quality Determination	on^\dagger	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Kikuchi, E. mi, Kikuchi, Y., Hirao, M 2012. Monitoring and Analysis of Solvent Emissions from Metal Cleaning Processes for Practical Process Improvement. Annals of Occupational Hygiene.							
Type of Data Source Hero ID	Releases to 2128076	o the Environment; Published M	lodels for E	xposures	or Rele	eases;		
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	otion (Subce	ategory of Use):	Open top	vapor d	orrossin	or and a second		
Release Source:	social) mons	ategory or ose).	Open top					
Environmental Me	edia:		air	rapor a	081000011	·o		
Release or Emission	on Factor:		various ra	te of sol	vent diff	fusion (kg/m-s)		
Release Estimatio	Release Estimation Method:		calculated					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	ility							
Domain 1. Itemap.	Metric 1:	Methodology	Medium	× 1	2	Journal article		
Domain 2: Repres	sentative							
1	Metric 2:	Geographic Scope	Medium	\times 1	2	Japan		
	Metric 3:	Applicability	High	$\times 2$	2	Vapor Degreasing		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2011		
	Metric 5:	Sample Size	N/A		N/A	modeling approach - no sample size		
Domain 3: Access	ibility/Clar	itv						
	Metric 6:	Metadata Completeness	Low	× 1	3	modeling air releases		
Domain 4: Variab	ility and Ur	ncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	error bars included but no discussion		
Overall Quality Determination †			High		1.6			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		mical summary for methylene ch				
Type of Data Source		the Environment; Reports for	Data or I	nformati	on Othe	er than Exposure or Release Data;
Hero ID	3860545					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			EDA CI	nemical S	Summar	
Life Cycle Descrip	tion (Subce	ategory of Use).	Varies	iemicai k	ummai	y
Release Source:	ition (Subca	negory or ose).	Varies			
Disposal /Treatme	ent Method		Varies			
Environmental Me		•	Air			
Release or Emissic			Varies			
Trotomo of Elimonic	on ractor.		Varios			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
D D !! 1.						
Domain 1: Reliabi		3.6.41 1.1	TT: 1	1	1	
	Metric 1:	Methodology	High	× 1	1	EPA - though there is a line that states: No attempt has been made to verify information in these databases and secondary sourced.
Domain 2: Repres		G 11 G	TT: 1			
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Low	$\times 2$	6	Overview of the DCM, production use, fate, etc.
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1994, 24 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessi	ibility/Clar	ity				
	Metric 6:	Metadata Completeness	Low	\times 1	3	No Comment.
Domain 4. W1	:1:4 17-	a containte				
Domain 4: Variab	Metric 7:	· ·	Low	× 1	9	N. Comment
	Metric 7:	Metadata Completeness	LOW	× 1	3	No Comment.
Overall Quality De	otorminatio	n†	Low		2.6	
Overall Quality Do	етепшпапо		LOW		2.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Atsdr,. 2006. Health consultation: Historical outdoor air emissions in the Endicott area: International Business Machines Corporation (IBM): Village of Endicott, Broome County, New York EPA facility ID: NYD002233039, Part 2.								
Type of Data Source									
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descript	tion (Subca	ategory of Use):	electronic	s manufa	cturing				
Release Source:	01011 (04000	acegory or ese).	fugitive a						
Environmental Me	dia:		Air						
Release or Emission	n Factor:		Varies						
Release Estimation	Method:		calculated	l based o	n histor	ric facility use data			
Release Days per Y	Year:		continuou	IS					
Number of Sites:			1						
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliabil	lity								
	Metric 1:	Methodology	High	× 1	1	Agency for Toxic Substances and Disease Registry (ATSDR)			
Domain 2: Represe	entative								
_	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	Low	\times 2	6	Overview and analysis of historical DCM release into the environment			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2006, 12 years old			
	Metric 5:	Sample Size	Low	$\times 1$	3	No Comment.			
D ' 9 A ''	1.11.4 / (C)11								
Domain 3: Accessi	Metric 6:	· ·	High	v 1	1				
	Metric 6:	Metadata Completeness	підіі	× 1	1	Clearly documents sources, methods, and assumptions			
Domain 4: Variabi	lity and Ur	ocertainty							
	Metric 7:	Metadata Completeness	High	$\times 1$	1	Discusses limitations and uncertainty in data.			
	·	1				v			
Overall Quality Determination [†]			Medium		1.9				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data; Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data; BEXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Environmental Media: Air Annual Release Quantity (kg/yr): Domain Metric Rating MWF* Score Comments Domain 1: Reliability	
Hero ID 3978168 EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Environmental Media: Air Annual Release Quantity (kg/yr): Domain Metric Rating MWF* Score Comments	
EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Environmental Media: Annual Release Quantity (kg/yr): Domain Metric Rating MWF* Score Comments	
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Environmental Media: Annual Release Quantity (kg/yr): Domain Metric Data Use Food Production Air 0.000043 to 0.0015 lbs/100,000 ounces Comments	
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Environmental Media: Annual Release Quantity (kg/yr): EVALUATION Domain Metric Use Food Production Air 0.000043 to 0.0015 lbs/100,000 ounces Comments	
Life Cycle Description (Subcategory of Use): Environmental Media: Annual Release Quantity (kg/yr): Domain Metric Food Production Air 0.000043 to 0.0015 lbs/100,000 ounces EVALUATION Rating MWF* Score Comments	
Life Cycle Description (Subcategory of Use): Environmental Media: Annual Release Quantity (kg/yr): Domain Metric Food Production Air 0.000043 to 0.0015 lbs/100,000 ounces EVALUATION Rating MWF* Score Comments	
Environmental Media: Air Annual Release Quantity (kg/yr): 0.000043 to 0.0015 lbs/100,000 ounces EVALUATION Domain Metric Rating MWF* Score Comments	
Annual Release Quantity (kg/yr): 0.000043 to 0.0015 lbs/100,000 ounces EVALUATION Domain Metric Rating MWF* Score Comments	
EVALUATION Domain Metric Rating MWF* Score Comments	
Domain Metric Rating MWF* Score Comments	
Domain 1: Reliability	
Domain 1: Reliability	
Metric 1: Methodology High \times 1 1 Franklin Associates/ERG	
Domain 2: Representative	
Metric 2: Geographic Scope High $\times 1$ 1 US	
Metric 3: Applicability Unacceptable \times 2 8 Not quite relevant. Only addresses atmospheric em Methylene Chloride	nisssions of
Metric 4: Temporal Representativeness Medium $\times 2$ 4 2008, 10 years old	
Metric 5: Sample Size Low $\times 1$ 3 No Comment.	
Domain 3: Accessibility/Clarity	
Metric 6: Metadata Completeness Medium × 1 2 Data is generally well documented.	
Domain 4: Variability and Uncertainty	
Metric 7: Metadata Completeness Medium × 1 2 Limited Discussion of uncertainty	
Overall Quality Determination † Unacceptable 4 Metric Mean Score: 2.3.	

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source		U.S, E. P. A 1993. Locating and estimating air emissions from sources of methylene chloride. Releases to the Environment; Environmental Release Data;							
Hero ID	3970168								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Manufact	ure					
Life Cycle Descrip	otion (Subca	ategory of Use):	Methane	Chlorina [,]	tion				
Release Source:		, , ,	Inert Gas	purge ve	ent proc	luct recover condenser			
Environmental Me	edia:		Air		_				
Release or Emission	on Factor:		0.28 lb/to	n produc	ced				
Number of Sites:			5						
ENATUADION									
EVALUATION					~	~			
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabi	ility								
	Metric 1:	Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database			
Domain 2: Repres	sentative								
Bolliam 2. Ropros	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Workplace that produces Methylene Chloride			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old			
	Metric 5:	Sample Size	Low	× 1	3	No Comment.			
Domain 3: Access:	ibility/Clan	:+							
Domain 5: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present			
	MEDITO 0.	Metadata Completeness	MEGIUIII	^ 1		Dasic Metadata present			
Domain 4: Variab	ility and Ui	ncertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	No addressed			
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		A 1993. Locating and estimat			m sourc	es of methylene chloride.
Type of Data Source Hero ID	Releases to 3970168	the Environment; Environment	tal Release	Data;		
	3970108					
EXTRACTION			Data			
Parameter			Data			
Life Cycle Stage:			Manufact	ure		
Life Cycle Descrip	otion (Subca	ategory of Use):	Methane	Chlorina	tion	
Release Source:			Storage			
Environmental Me			Air			
Release or Emission	on Factor:		2.04 lb/to	n produc	ced	
Number of Sites:			5			
TOTAL LI AMICAL						
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Medium	$\times 1$	2	Method was referenced in citation: XATEF database
Domain 2: Repres	contativo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	$\times 2$	$\overset{1}{2}$	Workplace that produces Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old
	Metric 5:	Sample Size	Low	\times 1	3	No Comment.
D ' 9 4	:1:1:1 / (C!	•	<u> </u>			
Domain 3: Access			Medium	v 1	9	D. M. L.
	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variab	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
		+	3.5.11		0.4	
Overall Quality D	eterminatio	n'	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	U.S, E. P. A 1993. Locating and estimating air emissions from sources of methylene chloride. Releases to the Environment; Environmental Release Data;							
Hero ID	3970168							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Manufact	ure				
Life Cycle Descrip	tion (Subca	ategory of Use):	Methyl C	hloride C	Chlorina	tion		
Release Source:			Inert Gas	purge ve	ent proc	duct recover condenser		
Environmental Me			Air					
Release or Emissio	n Factor:		0.052 lb/t	on produ	ıced			
Number of Sites:			5					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabi	lity							
	Metric 1:	Methodology	Medium	\times 1	2	Method was referenced in citation: XATEF database		
Domain 2: Represe	entative							
=	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that produces Methylene Chloride		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old		
	Metric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Accessi	bility/Clari	itv						
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Basic Metadata present		
Domain 4: Variabi	lity and Ur	acortainty						
Domain 4. Variabi	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed		
		h						
Overall Quality De	eterminatio	${f n}^{\dagger}$	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	U.S, E. P. A 1993. Locating and estimating air emissions from sources of methylene chloride. Releases to the Environment; Environmental Release Data;							
0.2	3970168							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Manufact	ure				
Life Cycle Descript	ion (Subca	ategory of Use):	Methyl C	hloride C	Chlorina	tion		
Release Source:	•	,	Storage					
Environmental Med			Air					
Release or Emission	n Factor:		4.92 lb/to	n produc	ced			
Number of Sites:			5					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabil	itv							
	Metric 1:	Methodology	Medium	\times 1	2	Method was referenced in citation: XATEF database		
Domain 2: Represe	entative							
_	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that produces Methylene Chloride		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old		
	Metric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Accessib	bility/Clari	itv						
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Basic Metadata present		
Domain 4. V:-1:1	liter and II	a containt.						
Domain 4: Variabil	nty and Ur Metric 7:	Metadata Completeness	Low	× 1	3	No addressed		
-	MEULC 1:	Metadata Completeness	LUW	^ I		No addressed		
Overall Quality Determination [†]			Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		A 1993. Locating and estimat			m sourc	es of methylene chloride.
0 1	Releases to 3970168	the Environment; Environment	tal Release	Data;		
EXTRACTION	0010100					
Parameter			Data			
			3.5			
Life Cycle Stage:	(0.1		Manufact			
Life Cycle Descript	tion (Subca	tegory of Use):	Methylene		le Prodi	action
Release Source: Environmental Me	1:		Entire Pro	ocesss		
Release or Emissio			6 lb/ton p	roduced		
Number of Sites:	n ractor.		5	nouncea		
Number of Sites.			0			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabil	lity					
	Metric 1:	Methodology	Medium	$\times 1$	2	Method was referenced in citation: XATEF database
Domain 2: Represe	ontativo					
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	$\times 2$	$\stackrel{1}{2}$	Workplace that produces Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	\times 1	3	No Comment.
Di 2. A	1-:1:4/CU	4				
Domain 3: Accessi	Metric 6:	Metadata Completeness	Medium	× 1	2	Decis Metadata massat
	METHO O:	Metadata Completelless	Mediuiii	^ 1		Basic Metadata present
Domain 4: Variabi	lity and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination [†]			Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	U.S, E. P. A 1993. Locating and estimating air emissions from sources of methylene chloride. Releases to the Environment; Environmental Release Data;							
	3970168							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Manufact	ure				
Life Cycle Description	(Subca	ategory of Use):	Wate Wat	ter Treat	ment			
Release Source:		,	Publically	owned t	treatme	nt works		
Environmental Media:			Air					
Release or Emission Fa	ctor:		1040 lb/to	on produ	ced			
Number of Sites:			5					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability								
· ·	ric 1:	Methodology	Medium	$\times 1$	2	Method was referenced in citation: XATEF database		
Domain 2: Representat	ive							
_	ric 2:	Geographic Scope	High	\times 1	1	US		
Met	ric 3:	Applicability	High	$\times 2$	2	Workplace that produces Methylene Chloride		
Met	ric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old		
Met	ric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Accessibility	//Clar	ity						
-	ric 6:	Metadata Completeness	Medium	\times 1	2	Basic Metadata present		
D	1 77							
Domain 4: Variability a			T	v 1	9	N 11 1		
Meta	ric 7:	Metadata Completeness	Low	× 1	3	No addressed		
Overall Quality Determ	ninatio	n^{\dagger}	Medium		2.1			
5.01am quanty Dollars								

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: 1991. Emissions of Metals and Organics from Municipal Wastewater Sludge Incinerators. Type of Data Source Hero ID 1991. Emissions of Metals and Organics from Municipal Wastewater Sludge Incinerators. Releases to the Environment; Environmental Release Data; 1261227							
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Release Source: Environmental Media: Release or Emission Factor: Release Estimation Method: Number of Sites:			Disposal Sludge Incinerator Stacks Air .151-1.04 gram/hr semi-VOST method (collected from flu-gas)				
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	EPA Method was referenced in text.		
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High Medium Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 4 6 3	US Workplace indirectly connected to Methylene Chloride 1987, 31 years old No Comment.		
Domain 3: Accessibility/Clar Metric 6:	rity Metadata Completeness	Medium	× 1	2	Majority of metadata present		
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	None addressed.		
Overall Quality Determination [†]				2.2			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	exhaust control. Journal of Hazardous Materials.							
0.2	leases to 32631	o the Environment; Environment	tal Release	Data;				
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Disposal					
Life Cycle Description (Subcategory of Use):			PCB recy	cling				
Release Source:		, , ,	Exhaust	O				
Environmental Media:			Air					
Release or Emission F	actor:		82-2010 u	g/g PCE	B pyroly	sis		
Release Estimation Method:		Discussed						
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability								
U	tric 1:	Methodology	Medium	× 1	2	Journal of Hazardous Materials - though no methods were stated for DCM		
Domain 2: Representa	tivo							
	tric 2:	Geographic Scope	Low	× 1	3	China		
	tric 3:	Applicability	Medium	\times 2	4	Workplace indirectly connected to Methylene Chloride		
	tric 4:	Temporal Representativeness	High	$\times 2 \times 2$	2	2013. 5 years old		
	tric 5:	Sample Size	Low	\times 1	3	No Comment.		
Domain 3: Accessibility	· ,		3.6 1:	1	9			
Me	tric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present		
Domain 4: Variability	and Uı	ncertainty						
	tric 7:	Metadata Completeness	Medium	× 1	2	Some variability addressed in the results.		
Overall Quality Determination [†]		Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Schuotz (Rogner I Chanten I Blake	D. Morcot	M Kio	dean P	2003. Comparative oxidation and net emissions of
						or soils. Environmental Science and Technology.
Type of Data Source		o the Environment; Environmen				
Hero ID	2528560					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Disposal			
Life Cycle Descript	ion (Subca	ategory of Use):	Landfill E	Emissions		
Release Source:			Ambient	Emission	s	
Environmental Media:			Air			
Release or Emission Factor:			$700 \mathrm{ug/L}$			
Release Estimation Method:			Discussed	l, but not	named.	
Release Days per Year:			365			
Number of Sites:			1			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1. Daliahil	1:4					
Domain 1: Reliabil	Metric 1:	Methodology	Medium	\times 1	2	American Chemical Society Environmental Science and Technology - detailed description of process, but no statement of
						method.
Domain 2: Represe	entative					
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US, predominantly. Lab work was done in the US.
	Metric 3:	Applicability	Low	$\times 2$	6	Workplace indirectly connected to Methylene Chloride
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2003, 15 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessi	bility/Clar	ity				
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Majority of metadata present
D	1 1.77					
Domain 4: Variabi		•	Τ	1	9	Y II
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality De	eterminatio	$ m n^\dagger$	Low		2.3	
o totall againly De						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

$L\epsilon$	egal regu	lations and costs of control. Jou	rnal of Env	rironmen		emissions from wastewater treatment plants in Taiwar agement.			
0.2	Releases to the Environment; Environmental Release Data; 2546404								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Disposal						
Life Cycle Description (Subcategory of Use):			Watewate	r Treatn	nent				
Release Source:			industrial	${\it effluent}$					
Disposal /Treatment			Standard						
Environmental Media			Air/Wate						
Release or Emission			ND-48.1 t		. D				
Release Estimation N	Aethod:		EPA Met	hod 8240	В				
EVALUATION									
Domain		Metric	Rating	MWF^*	Score	Comments			
Domain 1: Reliability	V								
•	etric 1:	Methodology	High	× 1	1	EPA Method 8240B			
Domain 2: Represent	tative								
-	letric 2:	Geographic Scope	Low	\times 1	3	Taiwan			
M	letric 3:	Applicability	Medium	$\times 2$	4	Workplace indirectly connected to Methylene Chloride			
M	letric 4:	Temporal Representativeness	Medium	$\times 2$	4	2008, 10 years old			
M	letric 5:	Sample Size	Low	× 1	3	No Comment.			
Domain 3: Accessibil	lity/Clari	ity							
	letric 6:	Metadata Completeness	Low	\times 1	3	Lacking in critical metadata			
Domain 4: Variabilit	v and Ur	ncertainty							
	etric 7:	Metadata Completeness	Low	× 1	3	None addressed.			
Overall Quality Determination [†]		Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Zhang, K 2010. Characterization and Uncertainty Analysis of VOCs Emissions from Industrial Wastewater Treatm Plants. Environmental Progress and Sustainable Energy.							
0.1							
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Disposal				
Life Cycle Description (Subcategory of Use): Release Source:			Industrial	Wastewa	ater Tre	eatment	
			industrial				
	Environmental Media: Release Estimation Method:			r			
				and TO		M + V3	
Daily Release Quantity (kg/day):			2.590 - 2.5	822 lb/da	ay		
Release Days per Year:		365?					
Number of Sites:			1				
EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliability							
· ·	ric 1:	Methodology	High	× 1	1	WATER9 and TOXCHEM +V3	
Domain 2: Representat	tive						
-	ric 2:	Geographic Scope	High	$\times 1$	1	US	
Met	ric 3:	Applicability	Medium	$\times 2$	4	Workplace indirectly connected to Methylene Chloride	
Met	ric 4:	Temporal Representativeness	High	$\times 2$	2	2010, 8 years old	
Met	ric 5:	Sample Size	Low	× 1	3	No Comment.	
Domain 3: Accessibility	v/Clar	itv					
	ric 6:	Metadata Completeness	Medium	\times 1	2	Majority of metadata present	
Domain 4: Variability	and U	ncertainty					
· ·	ric 7:	Metadata Completeness	High	× 1	1	Uncertainty in data/estimations is addressed in detail.	
Overall Quality Determ	Overall Quality Determination [†]		High		1.6		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	McCulloch, A., Midgley, P. M 1996. The production and global distribution of emissions of trichloroethene, tetrachloroethene and dichloromethane over the period 1988"1992. Atmospheric Environment. Releases to the Environment; Environmental Release Data; 3026800								
EXTRACTION	302000								
Parameter			Data						
Life Cycle Stage:			Global Er	nissions					
Life Cycle Description (Subcategory of Use):			Manufact		CM				
Environmental Me	`	83).	Air						
Release Estimation Method:			Discussed	, but not	named	l.			
Annual Release Quantity (kg/yr):		513,000 -	592,000	metric t	tons				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabi	ility								
Domain 1. Renabi	Metric 1:	Methodology	Medium	× 1	2	Process explained and cited.			
Domain 2: Repres	entative								
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	Europe			
	Metric 3:	Applicability	Medium	\times 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1995, 23 years old			
	Metric 5:	Sample Size	Low	× 1	3	not provided			
Domain 3: Access:	ibility/Clar	itv							
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present			
Domain 4: Variab	ility and Ur	ocertainty							
Domain 4. Variab	Metric 7:	Metadata Completeness	High	× 1	1	Uncertainty in data/estimations is addressed in detail.			
Overall Quality Determination †		Medium		2.2					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	U.S, E. P. ceutical pr		ies: Control	l of volat	ile orga	nic emissions from manufacture of synthesized pharma-	
Type of Data Source Hero ID		the Environment; Environment	tal Release	Data;			
EXTRACTION							
Parameter			Data				
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Release Source: Disposal /Treatment Method: Environmental Media: Release Estimation Method: Annual Release Quantity (kg/yr): Number of Sites:			Use pharmaceutical manufacture fugitive and stack Incineration Air Based on purchase and recovery numbers 5,310 metric tons >26				
EVALUATION Domain		Metric	Rating	MWF*	Caoro	Comments	
Domain		Metric	Rating	IVI VV F	Score	Comments	
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	EPA document	
Domain 2: Repres	ontativo						
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US	
	Metric 3:	Applicability	Medium	× 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1978, 40 years old	
	Metric 5:	Sample Size	Low	× 1	3	No Comment.	
Domain 3: Access	ibility/Clan	:+					
Domain 5: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present	
Domain 4: Variab	-						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.	
Overall Quality D	Overall Quality Determination [†]				2.2		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Japanese M	Ministry of, Environment. 2009.	Overview of	of PRTR	data in	i fiscal year 2009: Top 10 chemicals of reported release,
		side notification of PRTR.				,
Type of Data Source Hero ID	Releases to 3986513	o the Environment; Environment	tal Release	Data;		
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use/Man	ufacture		
	Life Cycle Stage. Life Cycle Description (Subcategory of Use):			ufacture		
Annual Release Q			14,763 to		2009)	
EXALUATION						
EVALUATION Domain		Matria	D - + :	MWF*	G	Comments
Domain		Metric	Rating	M W F	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Medium	\times 1	2	Ministry of the Environment (UK)
Domain 2: Repres	entative					
Bolliam 2. Repres	Metric 2:	Geographic Scope	Medium	\times 1	2	Europe
	Metric 3:	Applicability	Medium	\times 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2009, 9 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Access	ibility/Clar	ity				
Domain 5. Access	Metric 6:	Metadata Completeness	Low	× 1	3	No Comment.
D 4. 37 . 1	:1:41 TT					
Domain 4: Variab		Metadata Completeness	Low	× 1	3	Not addressed
		-				
Overall Quality D	Overall Quality Determination [†]		Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		A 1997. Pharmaceutical product the Environment; Environment				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subcategory of Use):			Pharmacu	ietical M	Ianufact	ure
	Environmental Media:			er		
Annual Release Q	Annual Release Quantity (kg/yr):			ustry wic	de:Air: 7	7,128,769 lb/yrWater: 496,917 lb/yr
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Medium	× 1	2	US EPA - but data is pulled from surveys, reporting, and extrapolation
Domain 2: Repres	sentative					
20 100p100	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	Medium	\times 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997, 21 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Access	ibility/Clar	itv				
	Metric 6:	Metadata Completeness	Low	× 1	3	No Comment.
Domain 4: Variab	ility and Ur	ocertainty				
Domain 4. Variati	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed
Overall Quality D	Overall Quality Determination [†]				2.4	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	U.S, E. P. Chloride.	A 2017. Preliminary Inform	ation on M	anufactu	ring, P	rocessing, Distribution, Use, and Disposal: Methylene
Type of Data Source Hero ID	Releases to 3986757	the Environment; Environment	tal Release	Data;		
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use/Man	ufacturo		
Life Cycle Description (Subcategory of Use):			Use/Man			
Release Source:	otion (bubec	legory or obo).			mport14	46 processing 202 other uses
Environmental Me	edia:		All		P	F
Release Estimatio	n Method:		Reported	Releases		
Annual Release Q	uantity (kg	/yr):	2015: 153			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1:4					
Domain 1. Renab	Metric 1:	Methodology	High	× 1	1	Office of Chemical Safety and Pollution Prevention (OCSPP) Report
Domain 2: Repres	ontativo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2017, 1 year old
	Metric 5:	Sample Size	High	× 1	1	Well characterized.
Domain 3: Access	ibility/Clan	:+				
Domain 5: Access	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.
	WICUITC O.	Wetadata Completeness	IIIgii	× 1		Wen documented.
Domain 4: Variab	ility and Ui	ncertainty				
	Metric 7:	Metadata Completeness	Medium	\times 1	2	Not applicable
Overall Quality D	Overall Quality Determination †				1.3	

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	_	Japanese Ministry of, Environment. 2004. Manual for PRTR release estimation models: Part II materials. Releases to the Environment; Environmental Release Data; 3986511								
EXTRACTION Parameter				Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Release Source: Environmental Media: Release or Emission Factor:			Use/Manufacture Use/Manufacture Manufacture, storage, solvent use, cleaning Atmosphere Manufacture: 0.002 kg/tStorage: 0.26 kg/tSolvent: 336 kg/tCleaning: 891 kg/t							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	oility Metric 1:	Methodology	Low	× 1	3	not specified				
Domain 2: Repres	sentative									
Bolliam 2. Repres	Metric 2:	Geographic Scope	Medium	$\times 1$	2	Likely Japan				
	Metric 3:	Applicability	Medium	\times 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Unknown				
	Metric 5:	Sample Size	Low	$\times 1$	3	Not well characterized				
Domain 3: Access	sibility/Clar	itv								
	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.				
Domain 4: Variab	oility and U	ncertainty								
	Metric 7:	Metadata Completeness	Medium	× 1	2	Not applicable				
Overall Quality D	Overall Quality Determination [†]				2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source		Ministry of, Environment. 2004. o the Environment; Environment			release e	estimation models: Part II materials.
EXTRACTION Parameter			Data			
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Release Source: Environmental Media: Release or Emission Factor:			Use Use Degreasing/steam washing Atmosphere: 0.8Water: 0Unit: Release/handled quantity With solvent recovery device: 0.4Without solvent recovery device: 0.75			
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabil	lity Metric 1:	Methodology	Low	× 1	3	not specified
Domain 2: Represe	ontativo					
=	Metric 2:	Geographic Scope	Medium	\times 1	2	Likely Japan
	Metric 3:	Applicability	Medium	\times 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Unknown
	Metric 5:	Sample Size	Low	$\times 1$	3	Not well characterized
Domain 3: Accessil	bility/Clar Metric 6:	ity Metadata Completeness	High	× 1	1	Well documented.
Domain 4: Variabil	lity and Ur Metric 7:		Medium	× 1	2	Not applicable
Overall Quality Determination [†]			Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

			G.,Walker, l	P.,Walla	ce, D.,W	Vechsler, A., Yee, J 1982. An exposure and risk assess-	
	es t	etrachloroethylene. o the Environment; Environment	tal Release	Data;			
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Description (Subcategory of Use):			Dry Clear	ning			
Environmental Media:			air++++				
Release or Emission Factor: Waste Treatment Method:			extimated 121,000 MT of PCE released to the atmosphere; the industry emits roughly one-half of the PCE it uses, mostly in the form of evaporative losses. Levels at the vents are between 6,800 and 680,000 ug/m3++++++++10 MT to sewer systems (table 2; pg 27 of 152). Carbon adsorption systems are being used increasingly to treat waste materials. In the process, solvents are routed through "chillers" to reduce relative temperatures.				
EVALUATION							
Domain		Metric	Rating	MWF	Score	Comments	
Domain 1: Reliability							
Metric	1:	Methodology	High	× 1	1	EPA	
Domain 2: Representativ	Э						
Metric		Geographic Scope	High	\times 1	1	US	
Metric	3:	Applicability	High	$\times 2$	2	dry cleaning data	
Metric	4:	Temporal Representativeness	Low	$\times 2$	6	Data from greater than 20 years (1982)	
Metric	5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics	
Domain 3: Accessibility/	Clar	rity					
Metric		Metadata Completeness	High	$\times 1$	1	Data sources clearly described	
D . 4 37 . 1.11	1 17						
Domain 4: Variability an			Low	v 1	9	Not allowed	
Metric	<i>(</i> :	Metadata Completeness	Low	× 1	3	Not addressed.	
Overall Quality Determin	atic	on^\dagger	Medium		1.8		

Source Citation:	Gilbert, D., Goyer, M., Lyman, W., ment for tetrachloroethylene.	Magil, G., Walker, I	P.,Wallac	e, D.,Wechsler, A	,Yee, J 1982. An exposure and risk assess			
Type of Data Source	Releases to the Environment; Env	ironmental Release	Data;					
Hero ID	732615							
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	ment for t	o.,Goyer, M.,Lyman, W.,Ma etrachloroethylene. o the Environment; Enviro	, , ,	ŕ	e, D.,V	Vechsler, A.,	Yee, J 1982. An exposure and risk assess				
EXTRACTION Parameter			Data								
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Environmental Media: Release or Emission Factor:			waterTetr tain inorg pounds of metals; th solutions TABLE 5 DER VAI	Use metal degreasing waterTetrachloroethylene is decomposed by contact with hot metals, certain inorganic acids, hot carbon, and certain alkaline metals or compounds of them. Unstabilized tetrachloroethylene can be corrosive to metals; this has obvious implications for the "terminal" disposal of waste solutions and sludges (containing the chemical) in unlined metal drums. TABLE 5. DEGRADATION OF TETRACHLOROETHYLENE UNDER VARIOUS CONDITIONS							
	Release Estimation Method:			a for Tere and after a function in up to a full ficiencies elease from a from pacity be a full fall fall fall fall fall fall fa	trachle er tera 2412 u ents we usual om cole a vape ecause less ras, which	proethvlene (attment are shaug/l, althougere much low lly above 90 d metal clea or degreaser vapor degre apidly, and	ning is waste solvent evaporation. is less than from a cold cleaner of easing wastes have a higher boiling vapor degreasing solvents contain led. Distillation is used to recycle				
EVALUATION											
Domain		Metric	Rating	MWF*	Score		Comments				
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	EPA					
Domain 2: Repre	sentative Metric 2:	Geographic Scope	High	× 1	1	US					
		O F	Continued on r								

constitued from provious page									
Source Citation:		.,Goyer, M.,Lyman, W.,Magil, Cetrachloroethylene.	G.,Walker,	P.,Wallac	e, D.,W	Vechsler, A., Yee, J 1982. An exposure and risk assess-			
Type of Data Source	Releases to	o the Environment; Environmen	tal Release	Data;					
Hero ID	732615								
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
	Metric 3:	Applicability	High	\times 2	2	degreasing data			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Data from greater than 20 years (1982)			
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics $% \left(1\right) =\left(1\right) \left(1\right) $			
Domain 3: Access	sibility/Clar	ity							
	Metric 6:	Metadata Completeness	High	\times 1	1	Data sources clearly described			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	$\times 1$	3	Not addressed.			
Overall Quality D	Overall Quality Determination [†]								

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		.,Goyer, M.,Lyman, W.,Magil, (etrachloroethylene.	G.,Walker, 1	P.,Wallac	e, D.,W	echsler, A., Yee, J 1982. An exposure and risk assess-			
Type of Data Source		the Environment; Environment	tal Release	Data;					
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descript	Life Cycle Description (Subcategory of Use):			ning - Inc	dustrial	Plant			
Environmental Media:			air						
Release or Emission	n Factor:		Release(se	ee Table	16 for a	additional details)			
Release Estimation			model						
Daily Release Quantity (kg/day):			22606						
	Annual Release Quantity (kg/yr):			3					
Release Days per Year:			6						
Number of Sites:			270						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabil	itv								
	Metric 1:	Methodology	High	× 1	1	EPA			
Domain 2: Represe	entative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	dry cleaning data			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Data from greater than 20 years (1982)			
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics $% \left(1\right) =\left(1\right) $			
Domain 3: Accessib	oility/Clari	itv							
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described			
Domain 4: Variabil	ity and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed.			
Overall Quality De	terminatio	${f n}^{\dagger}$	Medium		1.8				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Goyer, M.,Lyman, W.,Magil, Crachloroethylene.	G.,Walker, I	P.,Wallac	e, D.,W	echsler, A., Yee, J 1982. An exposure and risk assess-			
	the Environment; Environment	tal Release	Data;					
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subcate	Dry Clear	ning - Co	ommerci	al plant				
Environmental Media:		air						
Release or Emission Factor:	Release(se			dditional details); see page 96 of 152 for infor- OTWs.				
Release Estimation Method:		model		_				
Daily Release Quantity (kg/day	35002							
Annual Release Quantity (kg/y	Annual Release Quantity (kg/yr):							
Release Days per Year:								
Number of Sites:		18750						
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability								
· ·	Methodology	High	× 1	1	EPA			
Domain 2: Representative								
Metric 2:	Geographic Scope	High	\times 1	1	US			
Metric 3:	Applicability	High	$\times 2$	2	dry cleaning data			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Data from greater than 20 years (1982)			
Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics $% \left(1\right) =\left(1\right) +\left(1\right$			
Domain 3: Accessibility/Clarity	V							
	Metadata Completeness	High	× 1	1	Data sources clearly described			
Domain 4: Variability and Unc	ertainty							
	Metadata Completeness	Low	× 1	3	Not addressed.			
Overall Quality Determination	†	Medium		1.8				
	Con	tinued on r	ext page	9				

Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Ma ment for tetrachloroethylene.	gil, G.,Walker, l	P.,Wallac	e, D.,Wechsler, A	,Yee, J 1982. An exposure and risk assess-
Type of Data Source Hero ID	Releases to the Environment; Environ 732615	mental Release	Data;		
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		.,Goyer, M.,Lyman, W.,Magil, Cetrachloroethylene.	G.,Walker, l	P.,Wallac	e, D.,W	echsler, A., Yee, J 1982. An exposure and risk assess-			
0 1	Releases to 732615	the Environment; Environment	tal Release	Data;					
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description (Subcategory of Use):				reasing					
Environmental Media:			water	, 0					
Release or Emission	n Factor:		Release(se	ee Table	16 for a	dditional details); see page 96 of 152 for infor-			
				n dischar	ges to P	POTWs.			
Release Estimation			EXAMS :	model					
Daily Release Quar			58163						
Annual Release Qu	/yr):	8.76							
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabil	itv								
	Metric 1:	Methodology	High	× 1	1	EPA			
Domain 2: Represe	entative								
*	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	degreasing data			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Data from greater than 20 years (1982)			
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics $% \left(1\right) =\left(1\right) \left(1\right) $			
Domain 3: Accessib	hility/Clar	itv							
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described			
	,,,,,,		0						
Domain 4: Variabil	lity and Ur	acertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	Not addressed.			
Overall Quality Determination [†]			Medium		1.8				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		nal Association for Soaps Detergoing and maintenance products.	_	Iaintenar	nce Prod	ducts. 2012. AISE S	SPERC fact sheet - wide dispersive
Type of Data Source Hero ID		the Environment; Environmen		Data;			
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Stage. Life Cycle Descrip	otion (Subce	atogory of Uso):	aerosols				
Environmental M		negory or ose).	aerosois				
Release or Emissi			100 perce	ent			
EVALUATION							
Domain		Metric	Rating	MWF*	Score		Comments
Domain 1. Daliah	:1:4						
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	not specified	
	WICUITC 1.	Wethodology	LOW	× 1		not specified	
Domain 2: Repres	sentative						
•	Metric 2:	Geographic Scope	Medium	\times 1	2	EU	
	Metric 3:	Applicability	High	$\times 2$	2	Aerosols	
	Metric 4:	Temporal Representativeness	N/A		N/A	NA - assumption	
-	Metric 5:	Sample Size	N/A		N/A	NA - assumption	
D : 0 A	.1.11. /61	•.					
Domain 3: Access	- /		NT / A		NT / A	27.4	
	Metric 6:	Metadata Completeness	N/A		N/A	NA - assumption	
Domain 4: Variab	oility and Ur	ncertainty					
20110111 1. (01100)	Metric 7:	Metadata Completeness	N/A		N/A	NA - assumption	
		*	ı		,		
Overall Quality D	eterminatio	n^{\dagger}	Medium		1.8		
- 0							

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Occupational Exposure

mixed-s	solvent exposure in the screen print	ing industr			G 1995. Neurobehavioral effects of acute and chronic rnal of Industrial Medicine.				
pe of Data Source Occupa ero ID 7671	tional Exposure; Monitoring Data;								
XTRACTION Parameter		Data							
Life Cycle Stage:		Use							
Life Cycle Description (Subcategory of Use):			rinting						
Physical Form:			por						
Route of Exposure:			1						
Exposure Concentration (Unit):			m						
Number of Samples:									
Number of Sites:	3 1								
Type of Measurement or Method:			n						
Worker Activity:	washing s								
Type of Sampling:									
Exposure Duration:			area 20 min.						
Exposure Frequency:		6x/day							
VALUATION									
Domain	Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliability									
Metric	1: Methodology	Medium	× 1	2	No method, but sampling equimpent mentioned in addition to being reliable source: Department of Neurology, Boston University School of Medicine				
Domain 2: Representative									
Metric	2: Geographic Scope	High	\times 1	1	US				
Metric		High	\times 2	2	Workplace scenario that exposes employees to Methylene Chloride				
Metric	4: Temporal Representativeness	Low	$\times 2$	6	1995, 23 years old and prior to most recent PEL				
Metric	5: Sample Size	Medium	× 1	2	Characterized by a range.				
Domain 3: Accessibility/C	larity								
Metric	-	Low	× 1	3	Does not have baseline metadata				
D	II.								
Domain 4: Variability and	Uncertainty								

	constitued from previous page										
Source Citation:	,	F.,Proctor, S. P.,Echeverria, I ent exposure in the screen pri	, ,	,	,	G 1995. Neurobehavioral effects of acute and chronic rnal of Industrial Medicine.					
Type of Data Source	Occupation	Occupational Exposure; Monitoring Data;									
Hero ID	7671	, ,	,								
EVALUATION											
Domain		Metric	Rating	MWF*	Score	Comments					
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.					
Overall Quality Determination [†]		Medium		2.1							

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		A.,Becker, C. E.,So, Y.,Shore, M. nal and Environmental Medicine		ırotoxic e	effects of	f methylene chloride: Are they long lasting in humans?
	patio	nal Exposure; Reports for Data		tion Othe	er than l	Exposure or Release Data;
XTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subcategory of Use):			Paint Str	ipping		
Physical Form:			liquid, va	por		
Route of Exposure:				ı		
Exposure Concentration (Unit):				r range 1	1975 - 19	986.97 - 236 ppm
Number of Samples:						
Number of Sites:						
Type of Measurement or Method:						
Worker Activity:						
Number of Workers: Type of Sampling:			1,758			
Sampling Location:			personal, hanger	area		
Sampling Location.			nanger			
VALUATION						
VALUATION Domain		Metric	Rating	MWF*	Score	Comments
Domain		Metric	Rating	MWF*	Score	Comments
	ac 1:	Metric Methodology	Rating Low	MWF* × 1	Score 3	Comments No analytical method given
Domain Domain 1: Reliability Metri						
Domain 1: Reliability Metri Domain 2: Representativ	ve	Methodology	Low	× 1	3	No analytical method given
Domain Domain 1: Reliability Metri	ve lc 2:					No analytical method given US
Domain 1: Reliability Metri Domain 2: Representativ Metri	ve c 2: c 3:	Methodology Geographic Scope	Low	× 1	3	No analytical method given US Workplace scenario that exposed employees to Methylene Chlo
Domain 1: Reliability Metri Domain 2: Representativ Metri Metri	ve lc 2: lc 3:	Methodology Geographic Scope Applicability	Low High High	× 1 × 1 × 2	3 1 2	No analytical method given US Workplace scenario that exposed employees to Methylene Chloride
Domain 1: Reliability Metri Domain 2: Representativ Metri Metri Metri Metri	ve c 2: c 3: c 4: c 5:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	Low High High Low	× 1 × 1 × 2 × 2	3 1 2 6	US Workplace scenario that exposed employees to Methylene Chloride 1991, 27 years old
Domain 1: Reliability Metri Domain 2: Representativ Metri Metri Metri	ve c 2: c 3: c 4: c 5:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	Low High High Low	× 1 × 1 × 2 × 2	3 1 2 6	US Workplace scenario that exposed employees to Methylene Chloride 1991, 27 years old
Domain 1: Reliability Metri Domain 2: Representativ Metri Metri Metri Metri Metri Domain 3: Accessibility,	ve c 2: c 3: c 4: c 5: /Clar c 6:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	Low High High Low Low	× 1 × 1 × 2 × 2 × 1	3 1 2 6 3	US Workplace scenario that exposed employees to Methylene Chloride 1991, 27 years old Not characterized

				1 0						
Source Citation:	Lash, A. A.,Becker, C. E.,So, Y.,Shore Occupational and Environmental Med	<i>'</i>	rotoxic e	ffects of met	chylene chloride: Are they long lasting in humans?.					
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;									
Hero ID	13509			·						
EVALUATION										
Domain	Metric	Rating	MWF*	Score	Comments					
Overall Quality I	Determination [†]	Medium		2.2						

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		on, CS, Jr; Glaser, RA; Wells, VI	E. 1991. nan. Applied Occupational and Environmenta					
ype of Data Source Oc	Hygiene. Occupational Exposure; Monitoring Data 13526							
XTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description	(Subca	ategory of Use):	Furniture	Strippin	g			
Physical Form:			vapor					
Route of Exposure:			inhalation	ı				
Exposure Concentration	on (Uni	it):	15 - 366 p	opm				
Number of Samples:			14					
Number of Sites:			5					
Type of Measurement	or Met	hod:	TWA					
Worker Activity:			Stripping	furniture	(stripp	ping, washing, refinishing)		
Number of Workers:			14					
Type of Sampling:			Personal					
PPE:			rubber gloves, rubber aprons, safety glasses, rubber boots					
VALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability								
Domain 1: Reliability Me	tric 1:	Methodology	High	× 1	1	NIOSH Study		
Me		Methodology	High	× 1	1	NIOSH Study		
Me Domain 2: Representa		5.0		× 1	1	NIOSH Study 5 furniture strippers in U.S.		
Domain 2: Representa	ative	Geographic Scope	High					
Domain 2: Representa Me Me	itive tric 2:	5.0		× 1	1	5 furniture strippers in U.S. Furniture Stripping		
Domain 2: Representa Me Me Me	tric 2:	Geographic Scope Applicability	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	1 2	5 furniture strippers in U.S.		
Domain 2: Representa Me Me Me Me	tric 2: tric 3: tric 4: tric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low	× 1 × 2 × 2	1 2 6	5 furniture strippers in U.S. Furniture Stripping 1991 - more than 20 years old and prior to most recent PEL		
Domain 2: Representa Me Me Me Me Domain 3: Accessibilir	tric 2: tric 3: tric 4: tric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low	× 1 × 2 × 2	1 2 6	5 furniture strippers in U.S. Furniture Stripping 1991 - more than 20 years old and prior to most recent PEL		
Domain 2: Representa Me Me Me Me Domain 3: Accessibilir	tric 2: tric 3: tric 4: tric 5: ty/Clar tric 6:	Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	High High Low High	× 1 × 2 × 2 × 1	1 2 6 1	5 furniture strippers in U.S. Furniture Stripping 1991 - more than 20 years old and prior to most recent PEL Individual data points		

		enumaea nom p		Page	
Source Citation:	McCammon, CS, Jr; Glaser, RA; W Hygiene.	Vells, VE; Phipps, FO	C; Halpe	erin, WE.	1991. nan. Applied Occupational and Environmental
Type of Data Source	Occupational Exposure; Monitoring	g Data;			
Hero ID	13526				
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality I	$\rm Petermination^{\dagger}$	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		S., Marraccini, P., Franco, G., Imbral Exposure; Monitoring Data;	riani, M 1	993. Met	hylene o	chloride exposure in industrial workers. AIHA Journal.	
EXTRACTION Parameter			Data				
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling: Exposure Duration:			vapor inhalation 50.3 mg/1 washing g Personal	Pharmaceutical vapor inhalation 50.3 mg/m3 (mean) washing gelatine capsules			
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments	
Domain 1: Reliab	ility Metric 1:	Methodology	Medium	× 1	2	AIHA Journal Article	
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	Medium High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	2 2 6 3	Italy Pharmaceutical factory - washing gelatine capsules 1993, prior to most recent PEL only provided mean, range, and SD	
Domain 3: Access	ibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	personal samples, taken over 4 hr period	
Domain 4: Variab	ility and Ui Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	no discussion of uncertainy for air concentration data	
Overall Quality D	eterminatio	${f n}^{\dagger}$	Low		2.3		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

$\begin{array}{c} \text{exposed t} \\ \text{Type of Data Source} \end{array}$	exposed to methylene chloride. Scandinavian Journal of Work, Environment and Health.								
EXTRACTION									
Parameter		Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use):			Triaceta	te and F	Film Base Production - preparation and extru-				
Physical Form:		sion Vapor							
Route of Exposure:		Inhalation	n						
Exposure Concentration (Ur Worker Activity:	Exposure Concentration (Unit):		pm (med Triaceta		Film Base Production - preparation and extru-				
Type of Sampling:		sion PBZ							
EVALUATION									
Domain	Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliability									
Metric 1:	Methodology	Low	× 1	3	not described				
Domain 2: Representative									
Metric 2:	Geographic Scope	High	\times 1	1	US data				
Metric 3:	Applicability	High	$\times 2$	2	Use in scope				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1983, prior to most recent PEL				
Metric 5:	Sample Size	Medium	× 1	2	Range and median given, but no discrete data				
Domain 3: Accessibility/Cla	ritv								
Metric 6:	Metadata Completeness	Low	× 1	3	sample type given, no other metadata				
Domain 4: Variability and U	ncertainty								
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.				
Overall Quality Determinati	on [†]	Medium		2.2					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation							
Rev I	Γ	Г 1994.	Measurement of frequencies of I	HPRT muta	ants, chro	omosom	al aberrations, micronuclei, sister-chromatid exchanges
Parameter			nal Exposure; Monitoring Data;	,			
Life Cycle Description (Subcategory of Use):				Data			
Life Cycle Description (Subcategory of Use):	Tit C 1 C			TT			
Physical Form: Route of Exposure: Route of Exposure Concentration (Unit): Exposure Concentration (Unit): Number of Sites: Type of Measurement or Methodology Worker Activity: Number of Sampling: Type of Sampling: Bequipment Cleaning: Number of Workers: Type of Sampling: Bequipment Cleaning: Number of Workers: Type of Sampling: Bequipment Cleaning: Bequipment C		(C1	£		_4	4	d b d-
Route of Exposure Concentration (Unit)		on (Subca	itegory of Use):			contiane	ers and boards
Exposure Concentration (Unit):	ě .			. ,	*		
Number of Sites: Type of Measurement or Method	-	ation (Uni	+).				
Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Metric 1: Metric 2: Metric 3: Metric 4: Metric 5: Sample Size Medium X 1 Z 2 Workplace that has potential exposure to employees Medium X 1 Z 0 Medium X 1 X 0 Medium X 0 X 0 Medium X 1 X 0 Medium X 1 X 0 Medium X 1 X 0 Mer		icion (CIII	0).	1	, 1110		
Number of Workers: Type of Sampling: Seven Sampling: Seven S		ent or Met	hod:	TWA			
EVALUATION Domain 1: Reliability Metric 1: Methodology Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Metric 7: Medium Metric 7: Medium Metric 8: Medium Metric 9: Medium Metric 9: Medium Me	Worker Activity:			Equipmen	nt Cleani	ng	
EVALUATION Domain 1: Reliability Metric 1: Methodology Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativees Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Domain 4: Variability and Urratinity Metric 7: Metadata Completeness Medium × 1 2 2 Former German Democratic Republic Metric 3: Metadata Completeness Medium × 2 2 2 Workplace that has potential exposure to employees Medium × 2 1 2 1994, 24 years old and prior to most recent PEL Metric 5: Medium × 2 1 2 0nly provides mean and range Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Medium × 1 2 2 Offers limited discussion regarding potentials for variability. Metric 7: Medium × 2 2 2 2 0ffers limited discussion regarding potentials for variability. Medium × 1 2 2 0ffers limited discussion regarding potentials for variability.	Number of Workers:	:				Ü	
Domain 1: Reliability Metric 1: Methodology Low ×1 3 Unknown method Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High ×2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium ×1 2 Overall Quality Determination Medium ×1 2 Medium ×1 2 Medium ×1 2 Offers limited discussion regarding potentials for variability.	Type of Sampling:			ambient a	iir		
Domain 1: Reliability Metric 1: Methodology Low × 1 3 Unknown method Domain 2: Representative Metric 2: Geographic Scope Medium × 1 2 Former German Democratic Republic Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Metric 5: Sample Size Medium × 1 2 Only provides mean and range Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Very basic metadata Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination † Medium 2.2	EVALUATION						
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 5: Sample Size Medium × 1 2 Former German Democratic Republic Metric 5: Sample Size Medium × 1 2 Workplace that has potential exposure to employees Metric 5: Sample Size Medium × 1 2 Only provides mean and range Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Medium × 1 3 Very basic metadata Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination Medium 2.2	Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 2: Representative Metric 2: Geographic Scope Medium × 1 2 Former German Democratic Republic Metric 3: Applicability Metric 4: Temporal Representativeness Medium × 1 2 Workplace that has potential exposure to employees Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Medium × 1 2 Only provides mean and range Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination † Medium 2.2	Domain 1: Reliabili	ty					
Metric 2: Geographic Scope Medium × 1 2 Former German Democratic Republic Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Medium × 1 2 Offers limited discussion regarding potentials for variability.	N	Metric 1:	Methodology	Low	× 1	3	Unknown method
Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Medium × 2 2 6 1994, 24 years old and prior to most recent PEL Medium × 1 2 Only provides mean and range Very basic metadata Offers limited discussion regarding potentials for variability. Medium × 1 2 Offers limited discussion regarding potentials for variability.	Domain 2: Represer	ntative					
Metric 4: Temporal Representativeness Low × 2 6 1994, 24 years old and prior to most recent PEL Metric 5: Sample Size Medium × 1 2 Only provides mean and range Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Very basic metadata Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination † Medium 2.2	N	Metric 2:	Geographic Scope	Medium	\times 1	2	Former German Democratic Republic
Medium × 1 2 Only provides mean and range Domain 3: Accessibility/Clarity	N	Metric 3:		High		2	Workplace that has potential exposure to employees
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Very basic metadata Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Medium × 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination [†] Medium 2.2							1994, 24 years old and prior to most recent PEL
	N	Metric 5:	Sample Size	Medium	× 1	2	Only provides mean and range
	Domain 3: Accessib	ility/Clari	ity				
Metric 7: Metadata Completeness Medium \times 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination † Medium 2.2				Low	× 1	3	Very basic metadata
Metric 7: Metadata Completeness Medium \times 1 2 Offers limited discussion regarding potentials for variability. Overall Quality Determination † Medium 2.2	Domain 4: Variabili	ity and Ur	ncertainty				
<u> </u>			· ·	Medium	× 1	2	Offers limited discussion regarding potentials for variability.
Continued on next page	Overall Quality Det	erminatio	$ m n^{\dagger}$	Medium		2.2	
Continuou on none page			Con	ntinued on r	next page	9	

Source Citation: Type of Data Source Hero ID		es of HPRT muta Es in styrene/did	ants, chromosomal aberrat	R.,Stirn, H.,Zwinderman, A. H.,Natarajan, A. tions, micronuclei, sister-chromatid exchanges orkers. DNA Repair.
EVALUATION				
Domain	Metric	Rating	MWF* Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		r, B. R., Hearne, T., Hall, S 1 Mortality analysis. Journal of Oc				gation of employees chronically exposed to methylene			
Type of Data Source	Occupational Exposure; Monitoring Data; 65067								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descript	ion (Subca	ategory of Use):	cleaning s	solvent -	film ace	tate			
Physical Form:	(7	vapor						
Route of Exposure:			inhalation	ı					
Exposure Concentr	ation (Uni	t):	0-350 ppn	n					
Number of Samples	s: `		307						
Number of Sites:			1						
Type of Sampling:			Spot Sam	ples, per	sonal m	onitoring			
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabil	itv								
	Metric 1:	Methodology	Low	× 1	3	not described			
Domain 2: Represe	ntative								
	Metric 2:	Geographic Scope	High	\times 1	1	US data			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1978, 40 years old and prior to most recent PEL			
	Metric 5:	Sample Size	Medium	× 1	2	Only provides mean and range			
Domain 3: Accessib	oility/Clari	itv							
	Metric 6:	Metadata Completeness	Low	\times 1	3	sample type given, no other metadata			
Domain 4: Variabil	ity and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Medium	× 1	2	Offers limited discussion regarding potentials for variability.			
Overall Quality De	terminatio	n^{\dagger}	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	and painti	ng operations in the aeronautica				ional exposure to organic solvents during paint stripping rehives of Occupational and Environmental Health.	
Гуре of Data Source Hero ID	Occupation 76565	nal Exposure; Monitoring Data;					
EXTRACTION Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descrip	otion (Subca	ategory of Use):	Airplane		5		
Physical Form:			liquid, va				
Route of Exposur			inhalation				
Exposure Concent	tration (Uni	it):	299.2-188	8.9 mg/r	n3		
Number of Sites:	M	1 J.	TWA				
Type of Measurer Worker Activity:	nent or Met	mod:	Stripping	sinonaft	noint		
Type of Sampling			personal	ancian	pami		
Exposure Duratio			up to 8 h	Ours			
PPE:	11.		None worn.				
EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliab	:1:4						
Domain 1: Kenab	Metric 1:	Methodology	Medium	× 1	2	Not defined, but clearly described	
	1,100110 1.	memodology	Modrani	, I		Ivot defined, but clearly described	
Domain 2: Repres	sentative						
	Metric 2:	Geographic Scope	Medium	\times 1	2	France	
	Metric 3:	Applicability	High	\times 2	2	Workplace scenario that exposes employees to Methylene Chl ride	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old and prior to most recent PEL	
	Metric 5:	Sample Size	Medium	× 1	2	Characterized by a range.	
Damair 2: A-	.:b:1:4/01	:4					
Domain 3: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	Has baseline metadata	
	Metric 6:	Metadata Completeness	Medium	X 1		Has baseline metadata	
Domain 4: Variab	oility and U	ncertainty					
20114111 11 (42144)	Metric 7:	Metadata Completeness	Medium	\times 1	2	Data utilizes SD, but does not discuss variability much beyon that.	
			4:				
		Con	tinued on r	ext page	9		

Source Citation:	, , , , , , , ,	, ,			nal exposure to organic solvents during paint stripping ives of Occupational and Environmental Health.				
Type of Data Source		Occupational Exposure; Monitoring Data;							
Hero ID	76565								
EVALUATION									
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
Overall Quality I	Determination [†]	Medium		2.0					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ional exposure to organic solvents during paint stripping chives of Occupational and Environmental Health.	
Type of Data Source Hero ID	of Data Source Occupational Exposure; Monitoring Data;			mternat	ionai Ar	chives of Occupational and Environmental Health.	
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descrip	tion (Subca	ategory of Use):	Airplane	stripping	S		
Physical Form:			vapor				
Route of Exposure			inhalation	ı			
Exposure Concent	ration (Uni	it):	Stripping (8-hr TW		39.5 mg	/m3 (8-hr TWA); Masking: 97.2-174.6 mg/m3	
Number of Sample	es:		45				
Number of Sites:			1				
Type of Measurem	nent or Met	hod:	TWA				
Worker Activity:				(direct e	exposure); masking (indirect exposure)	
Type of Sampling:			personal				
Exposure Duration	n:		various				
EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliabi	lity						
	Metric 1:	Methodology	Medium	× 1	2	unclear- equipment information provided	
Domain 2: Repres	entative						
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	France	
	Metric 3:	Applicability	High	$\times 2$	2	Aircraft stripping	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993 - more than 20 years old and prior to most recent PEL	
	Metric 5:	Sample Size	Medium	\times 1	2	ranges provided	
Domain 3: Accessi	ibility/Clar	ity					
	Metric 6:	Metadata Completeness	Medium	× 1	2	details not provided for each sample	
Domain 4: Variabi	ility and Uı	ncertainty					
	-	Metadata Completeness	Medium	$\times 1$	2	limited discussion on variability	
	Metric 7:	Metadata Completeness	Wicdium			minited discussion on variability	
	Metric 7:	•	ntinued on 1			minica discussion on variability	

				<u> </u>				
Source Citation:	Vincent, R., Poirot, P., Subra, I., Rieger, B., Cicolella, A 1994. Occupational exposure to organic solvents during paint stripping and painting operations in the aeronautical industry. International Archives of Occupational and Environmental Health.							
Type of Data Source	Occupational Exposure; Monitoring Da	ta;						
Hero ID	76565							
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Overall Quality I	Determination [†]	Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						keda, M 1998. Monitoring of occupational exposure rational Archives of Occupational and Environmental		
Type of Data Source Hero ID	Occupation 667565	nal Exposure; Monitoring Data;						
EXTRACTION			ъ.,					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	Life Cycle Description (Subcategory of Use):							
Physical Form:			vapor					
Route of Exposure:			inhalation					
Exposure Concentration (Unit):			1-180 ppn	n				
Number of Sites:			unclear					
Worker Activity: Number of Workers: Type of Sampling:			cleaning up of printingrolls with DCM and application of DCM as a solvent in the production of industrial materials, among other processes 61 (unclear how many sites)					
			Exposure Duration	on:		8 hr		
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	oility							
	Metric 1:	Methodology	Medium	\times 1	2	carbon-cloth di"usive sampler - unclear the validity of the method		
						movinou.		
Domain 2: Repre	sentative					noono d		
Domain 2: Repres	sentative Metric 2:	Geographic Scope	Medium	× 1	2			
Domain 2: Repre		Geographic Scope Applicability		$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{2}{2}$	Data from Japan (OECD country) Use in scope		
Domain 2: Repre	Metric 2:	Applicability	Medium High Low			Data from Japan (OECD country)		
Domain 2: Repre	Metric 2: Metric 3:		High	\times 2	2	Data from Japan (OECD country) Use in scope		
	Metric 2: Metric 3: Metric 4: Metric 5:	Applicability Temporal Representativeness Sample Size	High Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	2 6	Data from Japan (OECD country) Use in scope study performed in 1997, after most recent PEL range, geometric mean, geometric standard deviation given, no		
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Applicability Temporal Representativeness Sample Size	High Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	2 6	Data from Japan (OECD country) Use in scope study performed in 1997, after most recent PEL range, geometric mean, geometric standard deviation given, no discrete data		
	Metric 2: Metric 3: Metric 4: Metric 5: sibility/Clar Metric 6:	Applicability Temporal Representativeness Sample Size ity Metadata Completeness	High Low Medium	× 2 × 2 × 1	2 6 2	Data from Japan (OECD country) Use in scope study performed in 1997, after most recent PEL range, geometric mean, geometric standard deviation given, no		

	continued from pr	CVIOUS	Page				
Occupational Exposure: Monitoring Data:							
667565	,						
Metric	Rating	MWF^{\star}	Score	Comments			
Determination [†]	Medium		2.1				
	Ukai, H.,Okamoto, S.,Takada, S.,In to dichloromethane by diffusive va Health. Occupational Exposure; Monitoring 667565 Metric	Ukai, H.,Okamoto, S.,Takada, S.,Inui, S.,Kawai, T.,Hi to dichloromethane by diffusive vapor sampling and u Health. Occupational Exposure; Monitoring Data; 667565 Metric Rating	Ukai, H.,Okamoto, S.,Takada, S.,Inui, S.,Kawai, T.,Higashikav to dichloromethane by diffusive vapor sampling and urinalysis Health. Occupational Exposure; Monitoring Data; 667565 Metric Rating MWF*	Occupational Exposure; Monitoring Data; 667565 Metric Rating MWF* Score			

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ype of Data Source	chlorinate of the contraction					P. A 2010. Statistical modeling of occupational ed database. Annals of Occupational Hygiene.
XTRACTION						
Parameter			Data			
Analytic Method:	eation (Uni s: ent or Met s:	t):	Multi-Industry Multi-Industry Vapor, liquid, Range: 0.0004 1272 reported All converted t Varies Varies Personal, Area Varies: looked chanical dilutio Varies	aerosol - 2200 pp measurer to 8 hour , Short T at impac	nents fro TWA	
VALUATION			Datin	MANUTH.	C	
Domain		Metric	Rating	MWF^*	Score	Comments
		Metric	Rating	MWF^	Score	Comments
Domain 1: Reliabili	ity Metric 1:	Metric Methodology	High	× 1	Score 1	Comments NIOSH document
Domain 1: Reliabil	Metric 1:					
Domain 1: Reliabili	Metric 1:	Methodology	High	× 1	1	NIOSH document
Domain 1: Reliabili	Metric 1:					NIOSH document US
Domain 1: Reliabili	Metric 1: entative Metric 2:	Methodology Geographic Scope	High High	× 1	1	NIOSH document US Does not indicate specific exposure scenarios for any of the
Domain 1: Reliabili	Metric 1: ntative Metric 2: Metric 3:	Methodology Geographic Scope Applicability	High Unacceptable	× 1 × 1 × 2	1 1 8	NIOSH document US Does not indicate specific exposure scenarios for any of the
Domain 1: Reliabili	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	High Unacceptable Medium	× 1 × 1 × 2 × 2	1 1 8 4	NIOSH document US Does not indicate specific exposure scenarios for any of the data 2010, but utilizes decades old data for analysis. Gives summary of data, no detailed points with characterization.

					. 6 .				
Source Citation: Type of Data Source	chlorinated	Hein, M. J., Waters, M. A., Ruder, A. M., Stenzel, M. R., Blair, A., Stewart, P. A 2010. Statistical modeling of occupational chlorinated solvent exposures for case-control studies using a literature-based database. Annals of Occupational Hygiene. Occupational Exposure: Monitoring Data:							
0 1		iai Exposure, Monitoring Dat	a,						
Hero ID	729521								
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 4: Varial	· ·	certainty Metadata Completeness	High	× 1	1	Variability and uncertainty are addressed in the document in the discussion of the methods.			
Overall Quality I	Determination	n [†]	Unacceptable		4	Metric Mean Score: 2.3.			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:			Vells, G. G 198	31. Some	observ	ations on workers exposed to methylene chloride.
Type of Data Course		urnal of Industrial Medicine. nal Exposure; Monitoring Data;				
Type of Data Source Hero ID	730498	nai Exposure; Monitoring Data;				
	100100					
EXTRACTION Parameter			Data			
			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subcategory of Use):			acetate film ma	anufactui	ring	
Physical Form:			vapor			
	Route of Exposure:					
Exposure Concent	tration (Uni	t):	75-100ppm(giv	en, untes	$_{ m ted})$	
Number of Sites:			1			
Number of Worke	76					
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
Bolliani I. Itolias	Metric 1:	Methodology	Low	\times 1	3	None Noted
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	Medium	$\times 2$	4	Focuses on medical impact not work environment.
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1981 - $37~{\rm years}$ old and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Access	ibility/Clari	its				
Domain 5. Access	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No metadata
	Wictire 0.	Wetadata Completeness	Спассериале	× 1		No meradara
Domain 4: Variab	ility and Ur	ncertainty				
	Metric 7:	· ·	Low	\times 1	3	None addressing data
		-				
Overall Quality D	eterminatio	${f n}^{\dagger}$	Unacceptable		4	Metric Mean Score: 2.7.
		(Continued on nex	t nage		
			John Head of Head	t Page		

Source Citation:	Cherry, N., Venables, H., Waldron, H. A., Wells, British Journal of Industrial Medicine.	G. G 1	1981. Some	e observations on	workers exposed to methylene chloride.
Type of Data Source Hero ID	Occupational Exposure; Monitoring Data; 730498				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		.,Lind, M. L.,Friis, L.,Itkes, N.,International Archives of Occup				993. High exposures to organic solvents among graffiti			
Гуре of Data Source Hero ID		nal Exposure; Monitoring Data;	ational and	Eliviron	шеша	Heattii.			
EXTRACTION Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description (Subcategory of Use):			Graffiti R	emoval					
Physical Form:			vapor						
Route of Exposure		+).	inhalation		maamat	cric mean = 127 mg/m3 ; geo SD = 3.6 mg/m3 ;			
Exposure Concent	Exposure Concentration (Unit):					$\sin \sin \sin \theta = 127 \text{ mg/m3}$; $\cos \sin \theta = 3.6 \text{ mg/m3}$; $\sin \sin \theta = 127 \text{ mg/m3}$; $\cos \theta = 3.6 \text{ mg/m3}$; $\sin \theta = 127 $			
						SD = 5.59 mg/m3; mean = 1,117 mg/m3			
Number of Samples:			12	,,, 6		-,,0/0			
Number of Sites:			1						
Type of Measurement or Method:			TWA						
Worker Activity:	Worker Activity:			Graffiti cleaning (spray solvent on surfaces and swab with tissue, or apply					
					vith bru	sh and wash with heated (70oC) high-pressure			
N			water spray)						
Number of Worker Type of Sampling			12 Personal leather gloves; no respirators; sometimes confined spaces						
PPE:	•								
11 12.			icather gr	oves, no	гезрпас	iors, sometimes commed spaces			
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	Medium	× 1	2	unclear - methods provided, conducted by Swedish Department of Occupational Medicine $$			
Domain 2: Repres	sentative								
Bomain 2. Repres	Metric 2:	Geographic Scope	Medium	× 1	2	Sweden			
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Graffiti Remover			
	** *				6	1993 - more than 20 years old and prior to most recent PEL			
	Metric 4:			-1	2				
	Metric 4: Metric 5:	Sample Size	Medium	× 1		range, geometric mean, mean			
Domain 3: Access	Metric 5:	Sample Size	Medium	× 1		range, geometric mean, mean			
Domain 3: Access	Metric 5:	Sample Size	Medium Medium	× 1	2	range, geometric mean, mean 8-hr TWA personal samples			

		COILLI	iueu iroin p	nevious	page	
Source Citation:	,	,Lind, M. L.,Friis, L.,Itkes, N. International Archives of Occu	, ,	,		993. High exposures to organic solvents among graffiti Health.
Type of Data Source Hero ID	Occupation 730504	al Exposure; Monitoring Data	i;			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 4: Varial	U	certainty Metadata Completeness	Medium	× 1	2	limited discussion on variability
Overall Quality I	Determination	'n	Medium		2.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	the potent	ial cancer risks of methylene chl				. 1999. Critical review of the epidemiology literature on es of Occupational and Environmental Health.
Type of Data Source Hero ID	Occupation 730507	nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit):			Triacetate	e film bas	se produ	uction
			vapor			
			inhalation			
			30-120ppi	m		
Type of Measuren	nent or Met	hod:	TWA			
	Worker Activity:		various			
Type of Sampling	:		personal/	area		
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	$\times 1$	1	US data
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1959-1975, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Access	sibility/Clar	itv				
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample time, exposure duration, and exposure frequency but results presented as 8-hr TWAs $$
Domain 4: Variab	ility and Ur	ncertainty				
Domain 4. variab	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality D	eterminatio	${f n}^\dagger$	Medium	_	2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source	the potent		. 1999. Critical review of the epidemiology literature on es of Occupational and Environmental Health.			
Hero ID	730507					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subcategory of Use):			Triacetate	e film bas	se prodi	uction
Physical Form: Route of Exposure: Exposure Concentration (Unit):			vapor		•	
			inhalation	ı		
				n (prepai	ration a	rea); 50-590 ppm (extrusion area)
Type of Measurement or Method:		TWA				
Worker Activity:		various				
Type of Sampling:			personal			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabi	lity					
Bolliani 1. Itenaol	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Repres	entative					
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1954-1977, prior to most recent PEL
	Metric 5:	Sample Size	Medium	\times 1	2	Range and mean given, but no discrete data
Domain 3: Access	ibility /Clan	:+				
Domain 5. Access.	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample time, exposure duration, and exposure fre-
	Metric 0.	Metadata Completeness	Medium	^ 1		quency but results presented as 8-hr TWAs
Domain 4: Variab	ility and H	ncertainty				
Domain 4. Variab	Metric 7:	Metadata Completeness	Low	\times 1	3	Not discussed.
		-				
Overall Quality De	eterminatio	n^{\dagger}	Medium		2.1	
• •						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	the potent	ial cancer risks of methylene chl				. 1999. Critical review of the epidemiology literature on es of Occupational and Environmental Health.
Type of Data Source Hero ID	Occupation 730507	nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subcategory of Use):			Triacetate	e film bas	se produ	uction
Physical Form: Route of Exposure:			vapor			
			inhalation	ı		
Exposure Concentration (Unit):			32325			
Type of Measurement or Method:		TWA				
Worker Activity:		various				
Type of Sampling	:		personal			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabi	ility					
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Repres	entative					
	Metric 2:	Geographic Scope	Medium	\times 1	2	UK
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1980-1988, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Access	ibility/Clar	itv				
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample time, exposure duration, and exposure frequency but results presented as 8-hr TWAs $$
Domain 4: Variab	ility and II	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality D	eterminatio	${f n}^\dagger$	Medium		2.2	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		. T.,Pifer, J. W 1999. Mort exposed to methylene chloride.				oing cohorts of photographic film base manufacturing d Environmental Medicine.			
	Occupation 30525	nal Exposure; Monitoring Data;							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description (Subcategory of Use):			photograp	ohic film	support				
Physical Form:			vapor						
Route of Exposure:				1					
Exposure Concentra		t):				730524 and 730507)			
Number of Samples:		, 2500 pe	rsonal o	over 50 years					
Number of Sites:			1						
Type of Measurement or Method:				8 hour TWA Various					
Worker Activity:									
Number of Workers:			1,070						
Type of Sampling:			personal, area						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabilit	ty								
	Metric 1:	Methodology	Low	× 1	3	Unknown method			
Domain 2: Represen	itative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
N	Metric 3:	Applicability	Medium	$\times 2$	4	Focuses on medical impact not work environment.			
N	Ietric 4:	Temporal Representativeness	Low	$\times 2$	6	Data runs from 1946-1994, prior to most recent PEL			
N	Metric 5:	Sample Size	Low	× 1	3	Limited			
Domain 3: Accessibi	ility/Clari	ity							
N	Metric 6:	Metadata Completeness	Low	× 1	3	Limited			
Domain 4: Variabili	tv and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data			
Overall Quality Dete	erminatio	${f n}^\dagger$	Low		2.6				
			ntinued on r						

Source Citation:	Hearne, F. T., Pifer, J. W 1999. employees exposed to methylene ch				rts of photographic film base manufacturing mental Medicine.
Type of Data Source	Occupational Exposure; Monitoring	g Data;	•		
Hero ID	730525				
EVALUATION					
Domain	Metric	Rating	MWF* S	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	F., Spencer, A. B 1996. Case st l Hygiene Association Journal.	udy: Contro	ol of met	hylene o	chloride exposures during furniture stripping. American				
	onal Exposure; Monitoring Data;								
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Use							
Life Cycle Description (Sub-	category of Use):	Furniture		ıg					
Physical Form:		liquid, va							
Route of Exposure:		inhalation	,	l					
Exposure Concentration (Un	nit):	21-2160 p	pm						
Number of Sites:	.1	1							
Type of Measurement or Me Worker Activity:	etnod:	TWA Stripping	f:						
Type of Sampling:			Turmtur	е					
	ent Exposure Reduction:	personal Some local exhaust ventilation and a makeup air unit outside stripping							
Engineering Control & perce	Engineering Control & percent Exposure Reduction:			area.					
Analytic Method:			NIOSH Method 1005						
Analytic Method:		NIOSH M	Iethod 10	005					
		NIOSH M	Method 10	005					
Analytic Method: EVALUATION Domain	Metric	NIOSH M	MWF*		Comments				
EVALUATION Domain	Metric				Comments				
EVALUATION					Comments NIOSH Method 1005				
EVALUATION Domain Domain 1: Reliability Metric 1:		Rating	MWF*	Score					
Domain 1: Reliability Metric 1: Domain 2: Representative	Methodology	Rating High	MWF*	Score 1	NIOSH Method 1005				
EVALUATION Domain Domain 1: Reliability Metric 1:		Rating	MWF*	Score	NIOSH Method 1005 US Workplace scenario that exposes employees to Methylene Chlo				
Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2:	Methodology Geographic Scope Applicability	Rating High	MWF* × 1 × 1	Score 1	NIOSH Method 1005				
Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3:	Methodology Geographic Scope Applicability Temporal Representativeness	Rating High High High	$\begin{array}{c} \text{MWF*} \\ \times 1 \\ \times 1 \\ \times 2 \end{array}$	Score 1 1 2	NIOSH Method 1005 US Workplace scenario that exposes employees to Methylene Chloride 1996, 22 years old and prior to most recent PEL				
Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	Rating High High High Low	$\begin{array}{c} \text{MWF}^{\star} \\ \times 1 \\ \times 1 \\ \times 2 \\ \times 2 \end{array}$	Score 1 1 2 6	US Workplace scenario that exposes employees to Methylene Chloride 1996, 22 years old and prior to most recent PEL Datapoints given as a range in many cases. Very little characteristics.				
Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	Rating High High High Low	$\begin{array}{c} \text{MWF}^{\star} \\ \times 1 \\ \times 1 \\ \times 2 \\ \times 2 \end{array}$	Score 1 1 2 6	NIOSH Method 1005 US Workplace scenario that exposes employees to Methylene Chloride 1996, 22 years old and prior to most recent PEL Datapoints given as a range in many cases. Very little characteristics.				
Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5: Domain 3: Accessibility/Cla	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size rity Metadata Completeness	Rating High High How Low	$\begin{array}{c} \text{MWF}^{\star} \\ \times 1 \\ \times 1 \\ \times 2 \\ \times 2 \\ \times 1 \end{array}$	1 1 2 6 3	US Workplace scenario that exposes employees to Methylene Chloride 1996, 22 years old and prior to most recent PEL Datapoints given as a range in many cases. Very little characterization				

		Р		1 . 0 .	
Source Citation:	Estill, C. F., Spencer, A. B. 1996. Case Industrial Hygiene Association Journal		l of meth	nylene chl	oride exposures during furniture stripping. American
Type of Data Source	Occupational Exposure; Monitoring Da	ata;			
Hero ID	730528	,			
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality I	Determination [†]	Medium		2.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		W., Amsel, J., Soden, K 1996. A ournal of Occupational and Env				cellulose triacetate-fiber workers exposed to methylene
Type of Data Source Hero ID	Occupation 730533	nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Cellulose	Triacetat	te-Fiber	
Exposure Concern			50-1250 p		00 1 1001	
Number of Sites:		• /	1	r		
Number of Worke	rs:		3,211			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
D ' 1 D !' 1	•1•4					
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	Not mentioned
	Medic 1.	Wethodology	LOW	× 1	<u> </u>	Not mentioned
Domain 2: Repres	sentative					
•	Metric 2:	Geographic Scope	Medium	\times 1	2	Canada
	Metric 3:	Applicability	High	\times 2	2	Workplace scenario that exposed employees to Methylene Chloride $$
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1996, but utilizes decades old data for analysis (prior to PEL)
	Metric 5:	Sample Size	Medium	× 1	2	Gives summary of basic data and a basic range, but nothing too detailed $$
Domain 2. Access	.:b:1:4/Clam					
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	discussed personal sampling data from another source
	TATEGLIC O.	Metadata Completeness	LOW	^ 1	J	discussed personal sampling data from another source
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	Does not address variability and uncertainty.
Overall Quality D	eterminatio	${ m n}^{\dagger}$	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

				f adverse	mortali	ty effects in workers exposed to methylene chloride: An	
Type of Data Source		ournal of Occupational Medicine nal Exposure; Monitoring Data;	•				
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descript	tion (Subca	ategory of Use):	photograp	ohic film	support		
Physical Form:	(vapor				
Route of Exposure	:		inhalation	1			
Number of Sample			1200 area	, 900 per	sonal or	ver 40 years	
Number of Sites:			1	_		-	
Worker Activity:			Various				
Number of Worker	s:		1,013				
Type of Sampling:			personal, area				
EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliabil	lity						
	Metric 1:	Methodology	Low	× 1	3	Unknown method	
Domain 2: Represe	entative						
=	Metric 2:	Geographic Scope	High	$\times 1$	1	US	
	Metric 3:	Applicability	Medium	$\times 2$	4	Focuses on medical impact not work environment.	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Data runs from 1946-1988, prior to most recent PEL	
	Metric 5:	Sample Size	Low	\times 1	3	Limited	
Domain 3: Accessi	bility/Clari	itv					
	Metric 6:	Metadata Completeness	Low	× 1	3	Limited	
Domain 4: Variabi	lity and Ur	acortainty					
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data	
Overall Quality De	eterminatio	n [†]	Low		2.6		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		F.,Rothman, K. J.,Dreyer, N. ian Journal of Work, Environme			993. N	Iortality update of cellulose fiber production workers.
Type of Data Source Hero ID	Occupation 730555	nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Tif C 1 C			M C 4			
Life Cycle Stage: Life Cycle Descrip	tion (Suba	atagory of Ugo);	Manufact cellulose		fibor	
Route of Exposure		itegory or ose).	inhalation		e moer	
Exposure Concent		t):	ND-1700			
Number of Sites:	(-	'	1	rr		
Type of Measuren	nent or Met	hod:	8 hr TWA	A		
Number of Worker	rs:		1,271			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
D ' 1 D !' 1	•1•4					
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	None given, references data from sampling done by Williams PR, et al.
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US data
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old and prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	range given, but no other statistics
Domain 3: Access	ibility/Clar	ity				
Domain 9. Hecoss	Metric 6:	Metadata Completeness	Low	\times 1	3	sample type given, no other metadata
	_					
Domain 4: Variab			_		_	
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.2	

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	upatio	M.,Kales, S. N 1999. Methylen nal Exposure; Monitoring Data;	e chloride p	poisoning	in a ca	binet worker. Environmental Health Perspectives.	
EXTRACTION Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Description	(Subca	ategory of Use):	laminatin		ry		
Physical Form:			vapor, liq				
Route of Exposure:			inhalation				
Exposure Concentration	n (Uni	t):	300-500 p	pm			
Number of Sites:			1				
Worker Activity:				ng - sprag	ying cor	ntact cement	
Number of Workers:			10				
Type of Sampling:			Area				
Exposure Duration:			Varies				
Exposure Frequency:			Varies				
PPE:			None used	1			
EVALUATION							
Domain		Metric	Rating	MWF^*	Score	Comments	
Domain 1: Reliability							
•	ric 1:	Methodology	Low	× 1	3	None Noted	
Domain 2: Representat	tive						
-	ric 2:	Geographic Scope	High	\times 1	1	US	
	ric 3:	Applicability	Medium	$\times 2$	4	Focuses on medical impact not work environment.	
	ric 4:	Temporal Representativeness	Medium	$\times 2$	4	1999, 19 years old but collected after most recent PEL	
	ric 5:	Sample Size	Low	\times 1	3	Limited	
Domain 3: Accessibility	v/Clar	itv					
	ric 6:	Metadata Completeness	Low	× 1	3	Limited	
Domain 4: Variability	and Ui	ncertainty					
-	ric 7:	Metadata Completeness	Low	× 1	3	None addressing data	
Overall Quality Determ	ninatio	n [†]	Low		2.3		
Overan Quanty Detern							

Source Citation: Type of Data Source Hero ID	Mahmud, M.,Kales, S. N 1999. Me Occupational Exposure; Monitoring 730564		ng in a cabinet wo	rker. Environmental Health Perspectives.
EVALUATION				
Domain	Metric	Rating MWI	F* Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

						T. F 1997. Mortality of workers exposed to methylene Occupational and Environmental Medicine.		
Type of Data Source C	Occupational Exposure; Monitoring Data; 730586							
EXTRACTION			D-4-					
Parameter			Data					
Life Cycle Stage: Life Cycle Description Exposure Concentra Number of Sites:			Use Film Prod 2-165 ppn 1		average	,		
Type of Measuremen	nt or Met	hod:	8 hr TWA	1				
	Worker Activity:							
Number of Workers:			1,473					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabili	4							
	Metric 1:	Methodology	Low	× 1	3	Explained exposure estimation philosophy but unable to verify credibility		
Domain 2: Represen	ntative							
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	UK		
Ν	Metric 3:	Applicability	High	\times 2	2	Workplace scenario that exposed employees to Methylene Chloride $$		
Ŋ	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997, but utilizes decades old data for analysis (prior to PEL)		
Ŋ	Metric 5:	Sample Size	Medium	× 1	2	Gives summary of basic data and a basic range, but nothing too detailed		
Domain 3: Accessib	ility/Clar	itv						
	Metric 6:	Metadata Completeness	Low	× 1	3	Does not quite fit the metadata completeness for the monitoring section, but cearly states how the metadata has been accounted for.		
Domain 4: Variabili	ty and Ur	ncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.		
Overall Quality Det	erminatio	n [†]	Low		2.3			
-			tinued on r					

Source Citation:	Tomenson, J. A., Bonner, S. M., Heiji chloride employed at a plant produc				97. Mortality of workers exposed to methylene onal and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring	g Data;		-	
Hero ID	730586				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	K. J 1993. An evaluation of chro tional Exposure; Reports for Data				Journal of Occupational Medicine. sure or Release Data;
EXTRACTION Parameter		Data			
Life Cycle Stage: Life Cycle Description (Su Exposure Concentration (Number of Sites: Number of Workers:		Use Triacetate Fibe 475 ppm avg. 1 1,271	er Manuf	acture	
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability Metric	1: Methodology	Low	× 1	3	No analytical method given
Domain 2: Representative					
Metric	2: Geographic Scope	High	\times 1	1	US
Metric	3: Applicability	High	\times 2	2	Workplace scenario that exposed employees to Methylene Chloride
Metric	4: Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old
Metric	5: Sample Size	Low	× 1	3	Not characterized
Domain 3: Accessibility/C	larity				
Metric		Unacceptable	× 1	4	personal samples. 8-hr TWA
Domain 4: Variability and	Uncertainty				
Metric		Low	× 1	3	Not discussed - focused on health effects
Overall Quality Determination	$ m tion^{\dagger}$	Unacceptable		4	Metric Mean Score: 2.4.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

						ers exposed to methylene chloride employed at a plant	
Type of Data Source	producing cellulose triacetate film base. International Archives of Occupational and Environmental Health. Occupational Exposure; Monitoring Data; 787813						
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descript			Film Pro	duction			
Exposure Concentr	ration (Uni	t):	19ppm av	verage			
Number of Sites:		, ,	1				
Type of Measurem	ent or Met	hod:	8 hr TWA Varies	A			
Number of Workers	Worker Activity:						
rumber of worker.	ы.		1,473				
EVALUATION							
Domain		Metric	Rating	MWF^*	Score	Comments	
Domain 1: Reliabil	litz						
	Metric 1:	Methodology	Low	× 1	3	Method referenced to journal article, but not fully expressed	
Domain 2: Represe	ntativa						
	Metric 2:	Geographic Scope	Medium	× 1	2	UK	
	Metric 3:	Applicability	High	$\times 2$	2	Workkplace scenario that exposed employees to Methylene Chloride	
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2010, but utilizes decades old data for analysis.	
	Metric 5:	Sample Size	Medium	× 1	2	Gives summary of data and a basic range, but nothing too detailed.	
Domain 3: Accessi	bility/Clar	itv					
	Metric 6:	Metadata Completeness	Low	× 1	3	Does not quite fit the metadata completeness for the monitoring section, but cearly states how the metadata has been accounted for.	
Domain 4: Variabil	lity and Ur	ncertainty					
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.	
Overall Quality De	eterminatio	\mathbf{n}^{\dagger}	Medium		2.1		
	Metric 7:	Metadata Completeness			2.1	Does not address variability and uncertainty.	

Source Citation:	Tomenson, J. A 2011. Update of a producing cellulose triacetate film ba	-		osed to methylene chloride employed at a plant all and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring	Data;		
Hero ID	787813	,		
EVALUATION				
Domain	Metric	Rating	MWF* Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	ype of Data Source O ero ID 81 XTRACTION Parameter Life Cycle Stage: Life Cycle Description Route of Exposure: Exposure Concentrate Number of Samples: Number of Sites:	ccupation 19357 on (Subca	nal Exposure; Monitoring Data;	Data Environm Waste Re	uent	iipound.	. АШАў.		
Parameter Environment Environment Environment Exposure Environment Exposure Concentration (Unit): ND-573 ppm Number of Samples: 27 Number of Sites: 1 Worker Activity: Waste Repackaging Parameter Paramet	Parameter Life Cycle Stage: Life Cycle Description Route of Exposure: Exposure Concentrate Number of Samples: Number of Sites:	`	,	Environm Waste Re					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Waste Repackaging inhalation ND-573 ppm Number of Samples: Number of Samples: Number of Sites: 1 Worker Activity: Waste Repackaging Type of Sampling: Exposure Duration: Exposure Frequency: Analytic Method: NIOSH Method 1500 and others EVALUATION Domain Metric 1: Methodology Metric 2: Geographic Scope High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Environment Waste Repackaging personal varies varies Varies Varies NIOSH Method 1500 and others	Life Cycle Stage: Life Cycle Description Route of Exposure: Exposure Concentrate Number of Samples: Number of Sites:	`	,	Environm Waste Re					
Life Cycle Description (Subcategory of Use): Route of Exposure: Exposure Concentration (Unit): ND-573 ppm Number of Samples: Number of Sites: Uworker Activity: Waste Repackaging Type of Sampling: Exposure Duration: Exposure Frequency: Analytic Method: NIOSH Method 1500 and others EVALUATION Domain Metric 1: Methodology Method Scope High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Life Cycle Description Route of Exposure: Exposure Concentrate Number of Samples: Number of Sites:	`	,	Waste Re					
Route of Exposure: inhalation Exposure Concentration (Unit): ND-573 ppm Number of Samples: 27 Number of Sites: 1 Worker Activity: Waste Repackaging Type of Sampling: personal Exposure Duration: varies Exposure Frequency: varies Analytic Method: NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Route of Exposure: Exposure Concentrat Number of Samples: Number of Sites:	`	,		1 .				
Exposure Concentration (Unit): Number of Samples: Number of Sites: Number of Samples: Numb	Exposure Concentrate Number of Samples: Number of Sites:	tion (Uni	t):	inhalation	packagın	g			
Number of Samples: Number of Sites: Number of Sites: Worker Activity: Waste Repackaging Type of Sampling: Exposure Duration: Exposure Frequency: Analytic Method: NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Number of Samples: Number of Sites:	tion (Uni	t):						
Number of Sites: Worker Activity: Waste Repackaging Type of Sampling: Exposure Duration: Exposure Frequency: Analytic Method: NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Number of Sites:			ND-573 p	pm				
Worker Activity: Type of Sampling: Exposure Duration: Exposure Frequency: Analytic Method: NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology Metric 2: Geographic Scope Waste Repackaging personal varies varies NIOSH Method 1500 and others NIOSH Method 1500 and others Tomments NIOSH Method 1500 and new methods for better Bexposure indexing				27					
Type of Sampling: Exposure Duration: Exposure Frequency: Analytic Method: Domain 1: Reliability Metric 1: Methodology Metric 2: Geographic Scope High × 1 1 US	Worker Activity:			_					
Exposure Duration: varies Exposure Frequency: varies Analytic Method: NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US					packagin	\mathbf{g}			
Exposure Frequency: Analytic Method: Varies NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Exposure Duration: Exposure Frequency:			varies					
Analytic Method: NIOSH Method 1500 and others EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US									
EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US									
Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Analytic Method:			NIOSH M	Iethod 1	500 and	others		
Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	VALUATION								
Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Metric 1: Methodology High × 1 1 NIOSH Method 1500 and new methods for better B Exposure indexing Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US	Domain 1: Reliabilit	V							
Metric 2: Geographic Scope High $\times 1$ 1 US			Methodology	High	× 1	1	NIOSH Method 1500 and new methods for better Biological Exposure indexing		
Metric 2: Geographic Scope High $\times 1$ 1 US	Domain 2: Represent	tative							
	1		Geographic Scope	High	× 1	1	IIS		
VIELUC 5: ADDUCADILLY DIPTO X / / Workplace that has potential exposure to employees		letric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees		
Metric 4: Temporal Representativeness Medium × 2 4 2001, 17 years old									
Metric 5: Sample Size Medium × 1 2 personal samples							, ,		
Domain 3. Accessibility/Clarity		lity/Clari	ita						
Metric 6: Metadata Completeness Medium $\times 1$ 2 Basic Meta data given.	M		·	Medium	\times 1	2	Basic Meta data given.		
	Domain 3: Accessibil	٠,							
Domain 4: Variability and Uncertainty	Domain 3: Accessibi	letric 6:							
Metric 7: Metadata Completeness Low × 1 3 None addressing data	Domain 4: Variabilit	letric 6: y and Ur							
	Domain 4: Variabilit	letric 6: y and Ur	ncertainty Metadata Completeness	Low	× 1	3	None addressing data		
Continued on next page	Domain 4: Variabilit	letric 6: y and Ur		Low	× 1	3	None addressing data		

		nemaca nem prev	rous page	
Source Citation:	Thrall, K. D., Callahan, P. J., Weitz, breath-analysis system for biological	, ,		,Kenny, D. V 2001. Design and evaluation of a AJ.
Type of Data Source	Occupational Exposure; Monitoring I	Data;	•	
Hero ID	819357	,		
EVALUATION				
Domain	Metric	Rating MV	VF* Score	Comments
Overall Quality I	${ m Determination}^{\dagger}$	Medium	1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		ers, W. M.,Roeleveld, N.,Zielhu candinavian Journal of Work, E				active disorders due to chemical exposure among hair-		
0.2	cupation 3689	nal Exposure; Monitoring Data;						
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description	(Subca	tegory of Use):	Hair Salo	n (Hair s	pray)			
Physical Form:			Aerosol					
Route of Exposure:			inhalation	1				
Exposure Concentration					mTWA	Personal: 18ppmPeak:400ppm		
Type of Measurement	or Met	hod:	Peak, TW					
Worker Activity:			Hair Styli					
Type of Sampling: Sampling Location:			Personal, area Ambient salon air and around chair					
Sampling Location:			Ambient	saion air	and arc	ound chair		
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability								
	tric 1:	Methodology	Low	× 1	3	No methodology given		
Domain 2: Representa	tive							
_	tric 2:	Geographic Scope	Medium	\times 1	2	The Netherlands		
Me	tric 3:	Applicability	High	$\times 2$	2	Hair salon, representative of workplace use.		
Me	tric 4:	Temporal Representativeness	Low	\times 2	6	1995, prior to most recent PEL		
Me	tric 5:	Sample Size	Medium	× 1	2	ranges and averages provided		
Domain 3: Accessibilit	v/Clari	tv						
	tric 6:	Metadata Completeness	Low	× 1	3	Possible 2, has basic information regarding overall findings		
Domain 4: Variability	and Un	ncertainty						
=	tric 7:	Metadata Completeness	Low	× 1	3	None addressing data		
Overall Quality Determ	minatio	n^\dagger	Low		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	Occupation 1612579	posures in a small printing plant nal Exposure; Monitoring Data;	t. Annals of Occ	upationa	l Hygiei	ne.
Hero ID EXTRACTION Parameter Life Cycle Stage:	1612579	nai Exposure; Monitoring Data;	Data			
Parameter Life Cycle Stage:	tion (Subca		Data			
Life Cycle Stage:	tion (Subca		Data			
	tion (Subca					
Life Cycle Descript	tion (Subca		Use			
		ategory of Use):	Printing press	cleaning		
Physical Form:			liquid, vapor			
Route of Exposure:			inhalation			
Exposure Concentr		t):	Estimated aver	age expo	sure: 6.	9ppm
Number of Sample	es:		7			
Number of Sites:			1			
Worker Activity:			Cleaning print	press rol	lers	
Exposure Duration	1:		8 hr			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabil	lity					
	Metric 1:	Methodology	Low	× 1	3	No methodology given
	1,100110 11	1.10011040106.j	2011			no monogology given
Domain 2: Represe	entative					
	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Representative of a workplace use.
	Metric 4:	Temporal Representativeness	Low	\times 2	6	Published 2009, but utilizes much older data (1993-2000, data from pre- and post-most recent PEL; therefore scored a "3")
	Metric 5:	Sample Size	Low	× 1	3	Range of data points on graph, but not expressly detailed
Domain 3: Accessi	bility/Clari	ity				
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No information as to sample type in exposure data/estimations
Domain 4: Variabi	lity and Un	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	None addressing data
		<u> </u>				
Overall Quality De	etermination	n^\dagger	Unacceptable		4	Metric Mean Score: 2.4.
			Continued on nex			

Source Citation:	Lee, E. G., Harper, M., Bowen, R. B., Slav acetone exposures in a small printing pla	,		ials: methylene chloride, isopropanol, and
Type of Data Source	Occupational Exposure; Monitoring Dat	a;		
Hero ID	1612579			
EVALUATION				
Domain	Metric	Rating	MWF^{\star} Score	Comments

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:				. 2002.	NIOSE	Health Hazard Evaluation Report: HETA No.
Type of Data Source Hero ID		83, Custom Products, Inc. Moo nal Exposure; Monitoring Data;	resville, NC.			
EXTRACTION Parameter			Data			
Life Cycle Stage: Life Cycle Descrip	otion (Subca	ategory of Use):	Use Solvent Based	Adhesive	es	
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Unacceptable	\times 2	8	HHE of facility that recently transitioned from methylene chloride to 1-bromopropane (1-BP)
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2002, 16 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Access	ibility/Clar	ity				
Domain 9. Necess	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No Comment.
Damain 4. Vaniala	:1:4 and II-	a containt.				
Domain 4: Variab		Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Unacceptable		4	Metric Mean Score: 2.7.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

						cinoma among offset colour proof-printing workers			
Type of Data Source		nal Exposure; Monitoring Data;	ichloromethane. Occupational and Environmental Medicine.						
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descript	ion (Subca	ategory of Use):	Offset Printing	r S					
Physical Form:			liquid, vapor						
Route of Exposure			inhalation						
Exposure Concentr	ration (Uni	t):	Estimated: 19	91-1993:	120-430	ppm1993-1998: 190-540ppm			
Number of Sites:			1						
Worker Activity:			Cleaning ink fr	rom print	plates				
Number of Worker			62						
Exposure Duration			8 hr						
Exposure Frequence PPE:	ey:		150-400 times						
PPE:			plastic gloves						
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliabil	lity								
	Metric 1:	Methodology	Low	× 1	3	No methodology given			
Domain 2: Represe	entative								
	Metric 2:	Geographic Scope	Medium	× 1	2	Japan			
	Metric 3:	Applicability	High	$\times 2$	2	Representative of a workplace use.			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	replacements of a management and published 2015, but utilizes much older (pre-PEL) data and firsthand accounts			
	Metric 5:	Sample Size	Medium	× 1	2	Range of data, no specific data points			
D : 9 A :	1:1:4 /61	•							
Domain 3: Accessi	bility/Clari Metric 6:	·	Unaggantable	v 1	4	No. in Commentation and a second of the comment of			
	Metric 0:	Metadata Completeness	Unacceptable	× 1	4	No information as to sample type in exposure data/estimations			
Domain 4: Variabi	lity and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	None addressing data			

Source Citation:	Kumagai, S., Kurumatani, N., Arimoto, A exposed to 1,2-dichloropropane and/or di	,		0	cinoma among offset colour proof-printing workers Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data	a;	•		
Hero ID	1936441				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Overall Quality I	Determination [†]	Unacceptable		4	Metric Mean Score: 2.4.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Chan C	Lee S. C. Chan, W. Ho, K. Tiau	L Lai S	Li V H	luano V	7. u. 2011. Characterisation of Volatile Organic Com-			
Source Citation:		Hotels in Southern China. Indo				1. u. 2011. Characterisation of Volatile Organic Com-			
Type of Data Source		nal Exposure; Monitoring Data;	or and Dar	it Eliviroi					
Hero ID	1978790	, , , , ,							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Ambient	Environn	nent (ho	otel)			
Life Cycle Descrip	otion (Subca	ategory of Use):	Various						
Physical Form:			vapor						
Exposure Concentration (Unit):			0-35 ug/m3						
Number of Sampl	es:		26 13						
Number of Sites:									
Type of Measurement or Method:			8 hour						
Type of Sampling:			area						
Sampling Location			non-smoking guest room						
Exposure Duratio			continuous						
Exposure Frequency:			varies	~ .					
Analytic Method:			US EPA	Compend	lium Me	ethod TO-14a			
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
	111 by								
Domain 1. Itelian	Metric 1:	Methodology	High	$\times 1$	1	US EPA Compendium Method TO-14a			
		Methodology	High	× 1	1	US EPA Compendium Method TO-14a			
Domain 2: Repres	sentative	3.0				US EPA Compendium Method TO-14a			
	sentative Metric 2:	Geographic Scope	Low	× 1	3	US EPA Compendium Method TO-14a China			
	sentative	3.0				·			
	sentative Metric 2:	Geographic Scope Applicability Temporal Representativeness	Low	× 1	3	China Focused on ambient air quality in a hotel, but relavent to work-			
	sentative Metric 2: Metric 3:	Geographic Scope Applicability	Low Low	× 1 × 2	3 6	China Focused on ambient air quality in a hotel, but relavent to workers in any ambient built environment			
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	Low Low High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	3 6 2	China Focused on ambient air quality in a hotel, but relavent to workers in any ambient built environment 2011			
	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	Low Low High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	3 6 2	China Focused on ambient air quality in a hotel, but relavent to workers in any ambient built environment 2011			
Domain 2: Repres	sentative Metric 2: Metric 3: Metric 4: Metric 5: sibility/Clar Metric 6:	Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	Low Low High Low	× 1 × 2 × 2 × 1	3 6 2 3	China Focused on ambient air quality in a hotel, but relavent to workers in any ambient built environment 2011 Provides basic summary and difficult to understand bar graph			
Domain 2: Repres	sentative Metric 2: Metric 3: Metric 4: Metric 5: sibility/Clar Metric 6:	Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	Low Low High Low	× 1 × 2 × 2 × 1	3 6 2 3	China Focused on ambient air quality in a hotel, but relavent to workers in any ambient built environment 2011 Provides basic summary and difficult to understand bar graph			

		onunaca nom p	1011045	Page	
Source Citation:	Chan, C.,Lee, S. C.,Chan, W.,Ho, F pounds at Hotels in Southern China				u. 2011. Characterisation of Volatile Organic Com-
Type of Data Source	Occupational Exposure; Monitoring	Data:			
Hero ID	1978790	,			
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality I	Petermination †	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		C.,Schultz, K.,Herrick, L.,Kwiath d Ecological Risk Assessment.	kowski, C	2014. A	n exploi	ratory study of air quality near natural gas operations.			
Type of Data Source Oc		nal Exposure; Monitoring Data;							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Mining/D						
Life Cycle Description	n (Subca	ategory of Use):	Closed lo	op hydra	ulic frac	cturing well			
Physical Form:			vapor						
Exposure Concentrate	ion (Uni	t):	Mean: 20	6.2 ppbF	Range: 2	2.7-1730			
Number of Samples:			48						
Number of Sites:			1						
	Type of Measurement or Method:			amples o		eek			
Worker Activity:				Drilling, fracturing, other					
Type of Sampling:			Area						
Sampling Location:			.7 miles fr	rom well	pad of i	interest.			
Exposure Duration:				ıs					
Exposure Frequency:			continuou						
Analytic Method:			USEPA N	Method T	O-15				
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability	7								
Me	etric 1:	Methodology	High	× 1	1	EPA Methods TO-15			
Domain 2: Represent	ative								
•	etric 2:	Geographic Scope	High	$\times 1$	1	US			
Me	etric 3:	Applicability	Medium	\times 2	4	Focused on ambient monitoring of a workplace that has exposure to Methylene chloride			
Me	etric 4:	Temporal Representativeness	High	$\times 2$	2	2010			
Me	etric 5:	Sample Size	High	× 1	1	Presented as Range, but includes mean and standard deviation and other metrics			
Domain 3: Accessibil	ity/Clar	itv							
	etric 6:	Metadata Completeness	High	$\times 1$	1	Has metadata in tables and within the text.			
1010		microaduu Compicioness	111511			The increases in tables and within the text.			
Domain 4: Variability	y and Ur	ncertainty							

			P		1 0				
Source Citation:		C.,Schultz, K.,Herrick, L.,Kwi d Ecological Risk Assessment		2014. Aı	n explor	ratory study of air quality near natural gas operations.			
Type of Data Source	Occupation	Occupational Exposure; Monitoring Data;							
Hero ID	2108438	, ,	,						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
	Metric 7:	Metadata Completeness	High	× 1	1	Addresses variability and uncertainty.			
Overall Quality I	Determination	n^\dagger	High		1.2				

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

			on of wor	ker exp	osure to TDI, MOCA, and methylene chloride. Journal			
	pational and Environmental Hygic cional Exposure; Monitoring Data							
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Su	Polyureth	ane Mol	d Releas	se Agent				
	Exposure Concentration (Unit):							
Number of Samples:	8 - STEL	1 - 8 Hr	TWA					
Number of Sites:	1							
Type of Measurement or M	STEL, T	WA						
Worker Activity:	Mold Rel	ease Age	nt, Occa	asional Part Cleaning				
Number of Workers:	11							
Type of Sampling:	Personal							
Sampling Location:		various						
	Exposure Duration:		workday varies					
Exposure Frequency: Engineering Control & per	ant Emague Poduction		Limited efficiency vents					
Engineering Control & per	tent Exposure Reduction.	Ellinted elliciency vents						
EVALUATION								
		D .:	MWF^{\star}	Score	Comments			
Domain	Metric	Rating		50010				
	Metric	Rating		50010				
Domain 1: Reliability			× 1		sampling conducted by OSHA, assumed OSHA method used			
		High	× 1	1	sampling conducted by OSHA, assumed OSHA method used			
Domain 1: Reliability Metric			× 1		sampling conducted by OSHA, assumed OSHA method used			
Domain 1: Reliability	: Methodology		× 1		sampling conducted by OSHA, assumed OSHA method used $$\operatorname{US}$$			
Domain 1: Reliability Metric Domain 2: Representative	2: Geographic Scope	High		1				
Domain 1: Reliability Metric 2 Domain 2: Representative Metric 2	2: Methodology 2: Geographic Scope 3: Applicability	High High	× 1	1	US Workplace scenario that exposed employees to Methylene Chlo-			
Domain 1: Reliability Metric 2 Domain 2: Representative Metric 3	2: Methodology 2: Geographic Scope 3: Applicability 4: Temporal Representativeness	High High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	1 1 2	US Workplace scenario that exposed employees to Methylene Chloride			
Domain 1: Reliability Metric 2 Domain 2: Representative Metric 3 Metric 4 Metric 4	2: Methodology 2: Geographic Scope 3: Applicability 4: Temporal Representativeness 5: Sample Size	High High High Medium	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	1 1 2 4	US Workplace scenario that exposed employees to Methylene Chloride 2007, 11 years old and after most recent PEL			
Domain 1: Reliability Metric 2 Domain 2: Representative Metric 3 Metric 4 Metric 4 Domain 3: Accessibility/C	2: Methodology 2: Geographic Scope 3: Applicability 4: Temporal Representativeness 5: Sample Size	High High High Medium High	× 1 × 2 × 2 × 1	1 1 2 4 1	US Workplace scenario that exposed employees to Methylene Chloride 2007, 11 years old and after most recent PEL discrete data given			
Domain 1: Reliability Metric 2 Domain 2: Representative Metric 3 Metric 4 Metric 4	2: Methodology 2: Geographic Scope 3: Applicability 4: Temporal Representativeness 5: Sample Size	High High High Medium	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	1 1 2 4	US Workplace scenario that exposed employees to Methylene Chloride 2007, 11 years old and after most recent PEL			
Domain 1: Reliability Metric 2 Domain 2: Representative Metric 3 Metric 4 Metric 4 Domain 3: Accessibility/C	2: Methodology 2: Geographic Scope 3: Applicability 4: Temporal Representativeness 5: Sample Size 4: Size Metadata Completeness	High High High Medium High	× 1 × 2 × 2 × 1	1 1 2 4 1	US Workplace scenario that exposed employees to Methylene Chloride 2007, 11 years old and after most recent PEL discrete data given			

			F		1 0				
Source Citation:	,	2006. OSHA compliance issional and Environmental Hy		on of wor	ker exp	osure to TDI, MOCA,	and methylene chloride. Journal		
Type of Data Source	Occupation	Occupational Exposure; Monitoring Data;							
Hero ID	2277546	, ,	,						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score		Comments		
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data			
Overall Quality D	Determination	n [†]	High		1.6				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		C. L., Jensen, P. A., Jones, J. H., Fre Stripping at Kwick Kleen Ind				epth Survey Report: The Control of Methylene Chloride ennes, Indiana.			
Type of Data Source Hero ID		nal Exposure; Monitoring Data;		,	,				
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description (Subcategory of Use):			Furniture	Strippin	ng				
	Physical Form:			por					
Route of Exposure: Exposure Concentration (Unit):			inhalatior						
			Mean are	a: 68-66'	7 ppmM	lean personal: 193-599 ppm			
	Number of Samples:								
Number of Sites:			3	_					
Worker Activity:			Stripping		е				
Type of Sampling:			personal,						
Analytic Method:	Analytic Method:				NIOSH Method 1005				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabi	ility								
	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005			
Domain 2: Repres	entative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	× 2	$\overline{2}$	Experiment that uses Methylene Chloride as it would be done in the workplace.			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990, 28 years old and prior to most recent PEL			
	Metric 5:	Sample Size	Medium	× 1	2	Characterized by a range, but also provides mean.			
Domain 3: Access	ibilitv/Clar	itv							
	Metric 6:	Metadata Completeness	Low	× 1	3	Data is presented in a range, incomplete metadata.			
Domain 4: Variab	ility and H	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data			
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.0				
		Con	tinued on r	ext page	e				

Source Citation:	Fairfield, C. L., Jensen, P. A., Jones, J. H., Fischbach, T. J.: 1990. In-Depth Survey Report: The Control of Methylene Chloride in Furniture Stripping at Kwick Kleen Industrial Solvents, Inc., Vincennes, Indiana.						
Type of Data Source	Occupational Exposure; Monitoring Data;						
Hero ID	2531020						
EVALUATION							
Domain	Metric	Rating	MWF^{\star}	Score	Comments		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		on, C. S., 1990. Health Hazard y, Arvada, Colorado.	Evaluation	Report	HETA	89-199-2033, Enseco, Inc., Rocky Mountain Analyti		
Type of Data Source Occ		nal Exposure; Monitoring Data;						
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description (Subcategory of Use):			Laborato	ry solven	t			
Physical Form:			vapor					
Route of Exposure:			inhalation	n				
Exposure Concentration (Unit):			0.8 - 8.5 pp	om (perso	onal); 3.	1-4.9 ppm (area)		
Type of Measurement or Method:			TWA					
Worker Activity:			various					
Type of Sampling:			personal					
Sampling Location:			various					
Exposure Duration:			various					
Analytic Method:			charcoal t	tubes/GS	5			
CVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliability								
	ric 1:	Methodology	High	× 1	1	NIOSH		
Domain 2: Representa	tive							
•	ric 2:	Geographic Scope	High	$\times 1$	1	US		
Met	ric 3:	Applicability	High	$\times 2$	2	Lab uses in scope		
	ric 4:	Temporal Representativeness	Low	$\times 2$	6	1989, prior to most recent PEL		
Met	ric 5:	Sample Size	High	× 1	1	discrete samples available		
Domain 3: Accessibilit	y/Clar	ity						
	ric 6:	Metadata Completeness	Medium	× 1	2	Exposure frequency not given, other metadata available		
Domain 4: Variability	and Uı	ncertainty						
	ric 7:	Metadata Completeness	Low	× 1	3	Not discussed.		
Overall Quality Deterr	ninatio	n [†]	Medium		1.8			

Source Citation:	McCammon, C. S 1990. Laboratory, Arvada, Colora		Evaluation	Report	HETA 89-199-2033,	Enseco, Inc., Rocky Mountain Analytical
Type of Data Source Hero ID	Occupational Exposure; Mo 2531033	onitoring Data;				
EVALUATION						
Domain	Met	ric	Rating	MWF^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	I.,Sheehy, J. W 1992. Walk-Th lder, Colorado, August 1, 1991.	rough Surv	ey Repor	t: Cont	rol of Methylene Chloride in Furniture Stripping at Jet
	nal Exposure; Monitoring Data;				
EXTRACTION Parameter		Data			
Life Cycle Stage:		Use			
Life Cycle Description (Subc	ategory of Use):	Furniture		ıg	
Physical Form:		liquid, va	-		
Route of Exposure:		inhalatio	n		
Exposure Concentration (Unit	it):	25-68			
Number of Samples:		3			
Number of Sites:		1	c		
Worker Activity:			furnitur	e	
Type of Sampling:			area	005	
Analytic Method:			Method 1	005	
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative					
Metric 2:	Geographic Scope	High	\times 1	1	US
Metric 3:	Applicability	High	$\times 2$	2	Workplace that uses Methylene Chloride
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1995, 26 years old and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	Poorly characterized
Domain 3: Accessibility/Clar	ity				
Metric 6:	Metadata Completeness	Low	× 1	3	No sampling time or other pertinent metadata
Domain 4: Variability and U	ncertainty				
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination	${f n}^{\dagger}$	Medium		2.1	
	Cor	ntinued on	next page	<u> </u>	

Source Citation:	Hall, R. M., Sheehy, J. W 1992. Walk-Th Strip, Boulder, Colorado, August 1, 1991.	rough Surv	ey Repor	t: Control of M	ethylene Chloride in Furniture Stripping at Jet
Type of Data Source Hero ID	Occupational Exposure; Monitoring Data; 2531076				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:			h Hazard	Evaluatio	n Repoi	rt HETA 92-0360-2372, Ackerman and Sons, Littleton,				
		NTIS/02989953_2.								
0.1		nal Exposure; Monitoring Data;								
Hero ID	2531126									
EXTRACTION										
Parameter	Parameter									
Life Cycle Stage:			Use							
	Life Cycle Description (Subcategory of Use):			Strippin	Q					
Physical Form:	(liquid,vaj		0					
Route of Exposure	:		inhalatio							
	Exposure Concentration (Unit):			ontrols: 3'	7 = 445	After Controls: ND - 110				
-	Number of Samples:			Personal:	14					
Number of Sites:			1							
	Type of Measurement or Method:									
Worker Activity:			Paint/fin	ish stripp	ing furr	niture, cleaning it post stripping				
Number of Workers:			5							
Type of Sampling:				personal, area						
Sampling Location	:		Stripping and washing station							
Exposure Duration	ı:		3-4 hours a day max Generally a few hours per week.							
Exposure Frequence	ey:									
Engineering Contro	ol & percer	t Exposure Reduction:	Added ex	khaust ver	ntilation	1				
PPE:			Rubber a	prons, ga	untlets,	, full shields,				
Analytic Method:			NIOSH Method 1005							
EVALUATION										
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
Domain 1: Reliabil	1;+									
Domain 1. Renabi	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005				
	Metric 1.	Wethodology	mgn	× 1	1	NIOSH Method 1003				
Domain 2: Represe	ontativo									
Domain 2. Represe	Metric 2:	Geographic Scope	High	× 1	1	US				
	Metric 3:	Applicability	High	$\times 1 \times 2$	2	Workplace that has potential exposure to employees				
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	1993, 25 years old and prior to most recent PEL				
	Metric 5:	Sample Size	High	$\times 1$	1	Appropriate characterization included				
			0**			I I I				
Domain 3: Accessi	bility/Clar	ity								
<u> </u>		Cor	tinued on	next page						

			intinaca nom	1	1 0	
Source Citation:		n, CS; Goldfield, J. 1993. NTIS/02989953_2.	Health Hazard	Evaluation	n Repor	rt HETA 92-0360-2372, Ackerman and Sons, Littleton,
Type of Data Source Hero ID		nal Exposure; Monitoring	Data;			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
	Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality D	eterminatio	$ m n^{\dagger}$	High		1.6	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	impact ass	Golsteijn, L., Huizer, D., Hauck, M., van Zelm, R., Huijbregts, M. A 2014. Including exposure variability in the life cycle impact assessment of indoor chemical emissions: the case of metal degreasing. Environment International. Occupational Exposure; Published Models for Exposures or Releases; 2537636							
EXTRACTION			D. /						
Parameter			Data						
Life Cycle Stage:			Life Cycle	e Assessn	nent				
Life Cycle Descrip	otion (Subca	ategory of Use):	Indoor ch	emical er	missions	3			
Physical Form:			vapor						
Worker Activity:			vapor degreasing - modeling						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	Peer reviewed, well referenced.			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	EU			
	Metric 3:	Applicability	High	$\times 2$	2	Encompasses workplace exposure			
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2014			
	Metric 5:	Sample Size	N/A		N/A	N/A - modeling approach			
Domain 3: Access	sibility/Clari	itv							
	Metric 6:	Metadata Completeness	High	\times 1	1	Rationale and approach are well detailed.			
Domain 4: Variab	oility and Ur	ncertainty							
Domain 1. Variat	Metric 7:	Metadata Completeness	Medium	× 1	2	Unclear in the data how it is characterized, but there is a significant analysis of the limitations of the model.			
Overall Quality D	eterminatio	$ ho^\dagger$	High		1.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	ka, J.,Gierczak, T 2013. d from the Office Equipmen				lyses of the Halogenated Volatile Organic Compounds nent.				
	tional Exposure; Reports fo		a or Information Other than Exposure or Release Data;						
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Use							
Life Cycle Description (Su	bcategory of Use):	Offgassin	g						
Physical Form:		Gas							
Route of Exposure:		inhalation							
Exposure Concentration (Unit):	0.04 - 1.2	4 ug/m3	Mean: 0	0.51 ug/m3				
Number of Samples:		16							
Worker Activity:		Standard	Office S	upplies					
Sampling Location:		Lab							
Exposure Duration:		Full-shift							
Exposure Frequency:		Continuo							
Analytic Method:		Described	d, but no	t named					
EVALUATION									
Domain	Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliability									
Metric	1: Methodology	Medium	× 1	2	Described, but not named				
Domain 2: Representative									
Metric	2: Geographic Scope	Medium	$\times 1$	2	Poland				
Metric	3: Applicability	Medium	\times 2	4	Workplace scenario that indirectly exposes employees to Methylene Chloride				
Metric	4: Temporal Representati	veness High	$\times 2$	2	2013, 5 years old				
Metric	5: Sample Size	Medium	× 1	2	Decent characterization				
Domain 3: Accessibility/C	larity								
Metric		s High	× 1	1	Well documented				
Domain 4: Variability and	Uncertainty								
Domain 4. variability and	v		1	9	D				
Metric	7: Metadata Completenes	s Low	× 1	3	Does not address variability and uncertainty.				
	7: Metadata Completenes	s Low	× 1	3	Does not address variability and uncertainty.				

		nomaca nom provi	ous page	
Source Citation:	Kowalska, J., Gierczak, T 2013. Qu Emitted from the Office Equipment I	•	•	s of the Halogenated Volatile Organic Compounds
Type of Data Source	Occupational Exposure; Reports for I	Oata or Information C	ther than Exp	osure or Release Data;
Hero ID	2655630			
EVALUATION				
Domain	Metric	Rating MW	F* Score	Comments
Overall Quality I	${ m Petermination}^{\dagger}$	Medium	1.8	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	V1- I	/ V C N T F. d.	C 2014 Cl		1 .			
Source Citation:		Occupational Health.	, G 2014. Cner	шсаг ехр	osure le	evels in printing workers with cholangiocarcinoma.		
Type of Data Source Hero ID	Occupational Exposure; Completed Exposure or Risk Assessments; 2797854							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	tion (Subca	ategory of Use):	Print Blanket	Cleaning				
Physical Form:		,	liquid, vapor	_				
Route of Exposure	e:		inhalation					
Exposure Concent	ration (Uni	t):	Estimated:0-34	0 ppm				
Number of Sites:			3					
Type of Measuren	nent or Met	hod:	Retrospective 1		ons			
Worker Activity:			Solvent based of	cleaning				
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabi	ility							
Domaii 1. Iteliaol	Metric 1:	Methodology	High	× 1	1	Estimated based on Near Field /Far Field Model		
Domain 2: Repres	entative							
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	Japan		
	Metric 3:	Applicability	Low	$\times 2$	6	Retroactive look at a workplace scenario		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	2014, but uses old data		
	Metric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Access	ibility/Clari	itar						
Domain 5. Access.	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.		
D . 4 37 . 1	.1 1.7.							
Domain 4: Variab			Т	v. 1	9			
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.		
Overall Quality Determination †			Unacceptable		4	Metric Mean Score: 2.8.		
Continued on next page								

Source Citation:	Yamada, K., Kumagai, S., Nagoya, T., E Journal of Occupational Health.	ndo, G 2014. Che	emical exposure levels in p	orinting workers with cholangiocarcinoma.			
Type of Data Source Hero ID	Occupational Exposure; Completed Exposure or Risk Assessments; 2797854						
EVALUATION							
Domain	Metric	Rating	MWF* Score	Comments			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		K.,Kumagai, S.,Kubo, S.,Endo, C (third report). Journal of Occu		cal expos	sure leve	els in printing and coating workers with cholangio-		
	Occupational Exposure; Completed Exposure or Risk Assessments; 3064878							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descript	tion (Subca	ategory of Use):	Print Blanket	Cleaning				
Physical Form:			liquid, vapor					
Route of Exposure			inhalation					
Exposure Concentr		t):	Estimated:20-4	170 ppmI	Estimate	ed Max: 300-980 ppm		
Number of Sample	s:		N/a					
Number of Sites:			2					
Type of Measurem	ent or Met	hod:	Retrospective		ons			
Worker Activity:			Solvent based	cleaning				
Number of Worker	·s:		5					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabil	lity							
	Metric 1:	Methodology	High	× 1	1	Estimated based on Near Field /Far Field Model		
Domain 2: Represe	entativo							
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	Japan		
	Metric 3:	Applicability	Low	$\times 2$	6	Retroactive look at a workplace scenario		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	2015, but estimates old data		
	Metric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Accessi	hility/Clari	itaz						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.		
Domain 4: Variabi								
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.		
Overall Quality De	eterminatio	\mathbf{n}^{\dagger}	Unacceptable		4	Metric Mean Score: 2.8.		
		(Continued on nex	t page				

Source Citation:	Yamada, K., Kumagai, S., Kubo, S., End carcinoma (third report). Journal of O	· ·	-	nting and coating workers with cholangio-				
Type of Data Source Hero ID	Occupational Exposure; Completed Exposure or Risk Assessments; 3064878							
EVALUATION								
Domain	Metric	Rating	MWF* Score	Comments				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		K.,Kumagai, S.,Endo, G 2015 burnal of Occupational Health.	. Chemical	l exposur	e levels	s in printing workers with cholangiocarcinoma (second
Type of Data Source Hero ID		nal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;
EXTRACTION			D. A			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip			Print Mal	king		
Exposure Concent		t):	Estimated	d: 0-440 j	ppm	
Number of Worke	rs:		7			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	:1:+					
Domain 1. Renab	Metric 1:	Methodology	Low	× 1	3	No analytical method given
D : 0 D	:					
Domain 2: Repres	Metric 2:	Geographic Scope	Medium	× 1	2	Japan
	Metric 3:	Applicability	High	$\times 2$	$\frac{2}{2}$	Workplace scenario that exposed employees to Methylene Chlo-
		· ·	_			ride
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2015
	Metric 5:	Sample Size	Low	× 1	3	Not characterized
Domain 3: Access	ibility/Clar	ity				
Domain of Heess	Metric 6:	Metadata Completeness	Low	\times 1	3	Hazy understanding of where statistics come from.
-						
Domain 4: Variab						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Discuss variability and uncertainty
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

			0040-251	0, Kraft	General Foods, Inc., Maxwell House Coffee, Co.,				
	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;								
3102344									
		Data							
		Coffee Decaffei	nating						
	Metric	Rating	MWF*	Score	Comments				
ility									
Metric 1:	Methodology	Unacceptable	× 1	4	No relevant methodology for DCM				
sentative									
Metric 2:	Geographic Scope	High	\times 1	1	US				
Metric 3:	Applicability	Unacceptable	$\times 2$	8	Methylene Chloride discontinued in operation years earlier				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
Metric 5:	Sample Size	Low	× 1	3	range provided from previous study				
sibility/Clar	itv								
Metric 6:	Metadata Completeness	Low	× 1	3	8-hr TWA personal samples				
:1:4 1 TI-	t - t - t								
	· ·	т	4	0					
Metric 7:	Metadata Completeness	LOW	X 1	3	Does not address variability and uncertainty.				
eterminatio	\mathbf{n}^{\dagger}	Unacceptable		4	Metric Mean Score: 3.1.				
	illity Metric 1: sentative Metric 2: Metric 3: Metric 4: Metric 5: sibility/Clar Metric 6: sillity and Un Metric 7:	Houston, Texas. Technical Report NIOSH Occupational Exposure; Reports for Data 3102344 Metric Metric ility Metric 1: Methodology sentative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size	Houston, Texas. Technical Report NIOSH/00228254. Occupational Exposure; Reports for Data or Information C 3102344 Data Coffee Decaffei Metric Rating illity Metric 1: Methodology Unacceptable sentative Metric 2: Geographic Scope High Metric 3: Applicability Unacceptable Metric 4: Temporal Representativeness Low Metric 5: Sample Size Low sibility/Clarity Metric 6: Metadata Completeness Low sility and Uncertainty Metric 7: Metadata Completeness Low	Houston, Texas. Technical Report NIOSH/00228254. Occupational Exposure; Reports for Data or Information Other tha 3102344 Data	Occupational Exposure; Reports for Data or Information Other than Exposure 3102344 Data				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Tsukahara, T., Miyauchi, H., Kuwada, D., Kikuchi, T., Tsuda, Y., Yanagiba, Y., Arito, H., Nomiyama, T 2016. Control banding assessment of exposure of offset printing workers to organic solvents. Journal of Occupational Health. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3419932							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Descrip Physical Form:	otion (Subca	tegory of Use):	Use Print Blanket liquid, vapor	Cleaning				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	oility Metric 1:	Methodology	Low	× 1	3	Techniques not specified		
Domain 2: Repres	contativo							
Domain 2. Repres	Metric 2:	Geographic Scope	Medium	× 1	2	Japan		
	Metric 3:	Applicability	Unacceptable	× 2	8	Retroactive look at a workplace scenario but only examines chemicals purchased		
	Metric 4: Metric 5:	Temporal Representativeness Sample Size	$_{ m N/A}$	\times 2	2 N/A	2016 N/A - no sample data		
Domain 3: Access	sibility/Clari Metric 6:	ity Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.		
			Спассерианс		-	To sampling commique used no movedance as a result.		
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No Comment.		
Overall Quality D	Determination	n [†]	Unacceptable		4	Metric Mean Score: 2.8.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Tobiszewski, M., Namie Ånik, J 2013. Distribution of volatile organohalogen compounds in petrochemical plant water streams. Chemistry and Ecology.								
Type of Data Source O	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3490937								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description	on (Subca	tegory of Use):		solvent (Petrole	ım Industry)			
Physical Form:			liquid						
Exposure Concentrat	tion (Unit	:	1-270 ug/	L					
Number of Samples: Number of Sites:			55 11						
Analytic Method:			Described	but not	t named				
rinary ore intention.			Described	, but no	Hannee	•			
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability									
•	y letric 1:	Methodology	Medium	× 1	2	Described, but not named			
Domain 2: Represent	tative								
	letric 2:	Geographic Scope	Medium	\times 1	2	Poland			
M	letric 3:	Applicability	Low	\times 2	6	Workplace scenario that exposes employees to Methylene Chloride, but is focused on environmental sampling			
M	letric 4:	Temporal Representativeness	High	$\times 2$	2	2013, 5 years old			
M	letric 5:	Sample Size	Low	× 1	3	Little Charcterization			
Domain 3: Accessibil	lity/Clari	tv							
	letric 6:	Metadata Completeness	Medium	× 1	2	Not always clear.			
Domain 4: Variabilit		•	M 1:	1	0	T			
IVI	letric 7:	Metadata Completeness	Medium	× 1	2	Limited Discussion.			
Overall Quality Dete	ermination	\mathbf{n}^{\dagger}	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		Xu, S. Y.,Gong, Q. C 2014. hina. Environmental Science and				dors emitted from urban wastewater pump stations in
Type of Data Source (Occupation 3492550		Tteseare.			
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Ambient	Environn	nent	
Life Cycle Descripti	on (Subca	tegory of Use):	Wastewat	er treatn	nent	
Physical Form:			vapor			
Route of Exposure:	. /	,	inhalation			
Exposure Concentra		t):	7.4-89.95	ug/m3		
Number of Samples: Number of Sites:			16 1			
Type of Sampling:			area			
Sampling Location:			Waste Wa	ter Pum	n Stora	ge Tank
Exposure Duration:			Continous		рыша	ge Tank
Exposure Frequency			Varies	,		
Analytic Method:			USEPA19	99		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabili	tv					
	Metric 1:	Methodology	High	× 1	1	USEPA1999
		37				
Domain 2: Represer	ntative					
	Metric 2:	Geographic Scope	Low	$\times 1$	3	China
	Metric 3:	Applicability	Low	$\times 2$	6	Environmental sampling of waste water pump
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2014
N	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessib	ility/Clari	tv				
	Metric 6:	Metadata Completeness	Low	\times 1	3	Limited
Domain 4: Variabili	-				-	
N	Metric 7:	Metadata Completeness	Medium	× 1	2	Addressed in USEPA method

		onemaca nom provide	re base	
Source Citation:	Niu, Z. G.,Xu, S. Y.,Gong, Q. C Tianjin, China. Environmental Scie			rs emitted from urban wastewater pump stations in
Type of Data Source	Occupational Exposure; Monitoring	Data;		
Hero ID	3492550	,		
EVALUATION				
Domain	Metric	Rating MWF	* Score	Comments
Overall Quality I	Determination [†]	Medium	2.2	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Evaluation	of Forensic Crime Lab Employe				Evaluation Report: HHE-2012-0238-3257, August 2016. Job Stress, and Work-Related Health Concerns.		
0 1	Occupation 3520311	nal Exposure; Monitoring Data;						
EXTRACTION Parameter			Data					
Life Creale Stame			Use					
Life Cycle Stage: Life Cycle Description (Subcategory of Use):				A dhogiro	g in Cri	me Scene Model Building		
Physical Form:			Liquid,		S III OIII	me Scene Woder Dunding		
Route of Exposure				ion, dern	nal			
	Exposure Concentration (Unit):			etected	1101			
Number of Sites:			1	ciccica				
Worker Activity:			Transfe	rring me	thylene	chloride, using methylene chloride to bond plas-		
Worker Healthly.					011) 10110	emorrae, asing meetly tone emorrae to solid plas		
Number of Workers:			tics. 800					
Sampling Location	Operati	ional Pro	jects Ui	nit, Latent Prints Operational Unit				
Exposure Duration:			Varies					
Exposure Frequence			Varies					
PPE:			Use proper gloves					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabil	lity							
	Metric 1:	Methodology	Low	× 1	3	No listed methods		
Domain 2: Represe	entative							
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	Low	\times 2	6	Certain departments used Methylene Chloride on a regular bases to build their projects, but not representative of com- mercial/industrial adhesive use.		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2016		
	Metric 5:	Sample Size	Low	\times 1	3	Unknown amount of samples or further details.		
D ' 9 A ''	1 :1:4 /61	.,						
Domain 3: Accessi	- /		T	v 1	9			
	Metric 6:	Metadata Completeness	Low	× 1	3	No clear statement about any of the methods, data, etc.		
Domain 4: Variabi	lity and Ur	ncertainty						
		Con	tinued or	next pa	age			
		Con		- 110110 PO	-0~			

	communication provides page											
Source Citation:		Beaucham, C. C., Fent, K., Wiegand, D., Seaton, M 2016. Hazard Evaluation Report: HHE-2012-0238-3257, August 2016. Evaluation of Forensic Crime Lab Employees' Chemical Exposures, Job Stress, and Work-Related Health Concerns.										
Type of Data Source		Occupational Exposure; Monitoring Data;										
Hero ID	3520311	3520311										
EVALUATION												
Domain		Metric	Rating	MWF*	Score	Comments						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.						
Overall Quality I	$ m n^{\dagger}$	Low		2.3								

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

DIC	HLOI	L.,Brugnone, F.,Grigolini, ROMETHANE CONCENTRAT Environmental Health.				A 1977. ALVEOLAR AIR AND BLOOD ΓORY-WORKERS. International Archives of Occupa-		
	patio	nal Exposure; Monitoring Data;						
EXTRACTION Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description (Subcategory of Use):			Polyureth	ane shoe	sole pr	oduction		
Physical Form:			liquid, va	por				
Route of Exposure:			inhalation	1				
Exposure Concentration (Unit): Number of Samples:				$g/m\hat{3}$				
Type of Measurement or Method:			grasp samples - short term?					
Worker Activity:				ing, soles	extract	ion, and soles polishing		
Number of Workers:			15					
Type of Sampling:			area					
Sampling Location:			moulds filling, soles extraction, and soles polishing stations					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability								
Met	ic 1:	Methodology	Low	× 1	3	Methods qualitatively explained but not clear nor current		
Domain 2: Representat	ve	Domain 2: Representative						
_	ve ic 2:	Geographic Scope	Medium	\times 1	2	Italy		
Met		Geographic Scope Applicability	Medium High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{2}{2}$	Italy Workplace that has potential exposure to employees		
Met Met	ic 2:					·		
Met Met	ic 2: ic 3: ic 4:	Applicability	High	\times 2	2	Workplace that has potential exposure to employees		
Met Met Met Met	ic 2: ic 3: ic 4: ic 5:	Applicability Temporal Representativeness Sample Size	High Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	2 6	Workplace that has potential exposure to employees Report from 1977 - prior to most recent PEL		
Met Met Met Met Domain 3: Accessibility	ic 2: ic 3: ic 4: ic 5:	Applicability Temporal Representativeness Sample Size	High Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	2 6	Workplace that has potential exposure to employees Report from 1977 - prior to most recent PEL		
Met Met Met Met Domain 3: Accessibility Met	ic 2: ic 3: ic 4: ic 5: /Clar ic 6:	Applicability Temporal Representativeness Sample Size ity Metadata Completeness	High Low Medium	× 2 × 2 × 1	2 6 2	Workplace that has potential exposure to employees Report from 1977 - prior to most recent PEL Some sampling areas were just given as a range		
Met Met Met Met Domain 3: Accessibility Met Domain 4: Variability a	ic 2: ic 3: ic 4: ic 5: /Clar ic 6:	Applicability Temporal Representativeness Sample Size ity Metadata Completeness	High Low Medium	× 2 × 2 × 1	2 6 2	Workplace that has potential exposure to employees Report from 1977 - prior to most recent PEL Some sampling areas were just given as a range		

		COHUI	naca nom pr	CVIOUS	page			
Source Citation:	Perbellini, L.,Brugnone, DICHLOROMETHANE (tional and Environmental	CONCENTRA	, ,	,	,	LVEOLAR Internationa		
Type of Data Source	Occupational Exposure; M	Ionitoring Data	a;					
Hero ID	3586319	0	,					
EVALUATION								
Domain	$\mathrm{M}\epsilon$	etric	Rating	MWF^*	Score	Comments	S	
Overall Quality I	${ m Petermination}^{\dagger}$		Low		2.3			

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		g, J.,Zhang, D.,Zeng, Y.,Shao, L rnal of Environmental Sciences.	2010. Re	elease of	volatile	organic compounds during bio-drying of municipal solid		
Type of Data Source Oc		nal Exposure; Monitoring Data;						
EXTRACTION								
Parameter		Data						
Life Cycle Stage:			Ambient					
Life Cycle Description	n (Subca	tegory of Use):	Municipa	l Solid W	/aste Dr	rying		
Physical Form:			Vapor					
Route of Exposure:			Inhalation					
Exposure Concentrate	ion (Uni	t):	ND-2.01	$ m mg/m\hat{3}$				
Type of Sampling:								
Sampling Location:				e				
Exposure Duration:								
Exposure Frequency:								
Analytic Method:			Described, but not named					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability	V							
-	etric 1:	Methodology	Low	× 1	3	None Noted		
Domain 2: Represent	ative							
M_0	etric 2:	Geographic Scope	Low	\times 1	3	China		
M_0	etric 3:	Applicability	Medium	$\times 2$	4	Focuses on medical impact not work environment.		
M_0	etric 4:	Temporal Representativeness	High	$\times 2$	2	2010		
Me	etric 5:	Sample Size	Low	× 1	3	Limited		
Domain 3: Accessibil	ity/Clari	ity						
Me	etric 6:	Metadata Completeness	Low	× 1	3	Limited		
Domain 4: Variability	y and Un							
Me	etric 7:	Metadata Completeness	Low	× 1	3	None addressing data		
Overall Quality Deter	rminatio	\mathbf{n}^{\dagger}	Low		2.3			
			tinued on r					

Source Citation: Type of Data Source	He, P., Tang, J., Zhang, D., Zeng, Y., Shao, L. waste. Journal of Environmental Sciences. Occupational Exposure; Monitoring Data;	. 2010.	Release of v	olatile or	ganic compounds during bio-drying of municipal solid
Hero ID	3587321				
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Domain	Metric	nating	, IVI VV F	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

						M., Missaghian, R 2004. Lead and methylene chloride onal and Environmental Hygiene.			
Type of Data Source O		nal Exposure; Monitoring Data;	cians. Jour	nar or oc	cupatio	mai and Environmental Hygiene.			
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description (Subcategory of Use):			Paint Stri						
Physical Form:	Physical Form:			apor					
Route of Exposure:			Inhalation	,	l				
Exposure Concentrat	tion (Uni	t):	26-120 pp						
Number of Samples:			2 TWA, 3	S short te	erm				
	Number of Sites:			1 1					
Type of Measurement or Method:			8hr TWA		rt term				
Worker Activity: Number of Workers:			Paint stri	pping					
Type of Sampling:				Personal					
Exposure Duration:			N/a						
Analytic Method:			NIOSH method P&CAM 127						
. J			1.2001 monda 1 worth 121						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability	v								
· · · · · · · · · · · · · · · · · · ·	letric 1:	Methodology	High	\times 1	1	NIOSH method P&CAM 127			
		3.							
Domain 2: Represent	tative								
M	letric 2:	Geographic Scope	High	$\times 1$	1	US			
	letric 3:	Applicability	High	$\times 2$	2	Automotive Paint Stripping			
	letric 4:	Temporal Representativeness	Medium	$\times 2$	4	2004, 14 years old			
M	letric 5:	Sample Size	Medium	× 1	2	Limited data to work with.			
Domain 3: Accessibil	lity/Clar	ity							
	letric 6:	Metadata Completeness	Low	\times 1	3	Very basic metadata			
D 4. W: 1:11									
Domain 4: Variabilit	y and Ur letric 7:	Metadata Completeness	Medium	× 1	2	Addressed in NIOSH method			
N. A				addressed in NIUSH method					

		лишаеа пеш р	1011045	Puge						
Source Citation:	Enander, R. T., Cohen, H. J., Gute, D. M., Brown, L. C., Desmaris, A. M., Missaghian, R 2004. Lead and methylene chloride exposures among automotive repair technicians. Journal of Occupational and Environmental Hygiene.									
Type of Data Source	Occupational Exposure; Monitoring Data;									
Hero ID	3588270	,								
EVALUATION										
Domain	Metric	Rating	MWF*	Score	Comments					
Overall Quality I	Determination [†]	Medium		1.7						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

			R. W.,Ko	ovein, R	. J 2002. Engineering controls for furniture strippers			
	ne OSHA methylene chloride PE onal Exposure; Monitoring Data;	L. AIHAJ.						
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subcategory of Use):			Strippin	g				
Physical Form:		liquid, va						
Route of Exposure:		inhalation	n					
Exposure Concentration (Unit):			lation:	geometr	ric mean 39-332 ppmPost-ventilation: geo.			
Number of Samples:								
Number of Sites:								
Type of Measurement or Method:								
Worker Activity:			Strippin	g				
Type of Sampling:			personal, area					
Engineering Control & percent Exposure Reduction:			ols in the	first 1	sampling events, but new ventilation system			
Engineering Control & perce	in Exposure neduction.			III SU T	sampling events, but new ventuation system			
Engineering Control & perce	nt Exposure Reduction.	on the 5th NIOSH 1	h.		• •			
	nt Exposure Reduction.	on the 5tl	h.		• •			
Analytic Method:	Metric	on the 5tl	h.		• •			
Analytic Method:		on the 5th NIOSH 10	h. 005 and (OSHA 8	30			
Analytic Method: EVALUATION Domain		on the 5th NIOSH 10	h. 005 and (OSHA 8	30			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1:	Metric	on the 5th NIOSH 10 Rating	h. 005 and (MWF*	OSHA 8	Comments			
Analytic Method: EVALUATION Domain Domain 1: Reliability	Metric Methodology	on the 5th NIOSH 10 Rating	h. 005 and (MWF*	OSHA 8	Comments			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative	Metric	on the 5t NIOSH 10 Rating	h. 005 and MWF* × 1	Score	Comments NIOSH 1005 and OSHA 80			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2:	Metric Methodology Geographic Scope	on the 5t NIOSH 10 Rating High	h. 005 and MWF* × 1 × 1	Score 1	Comments NIOSH 1005 and OSHA 80 US Workplace scenario that exposes employees to Methylene Chlor			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3:	Methodology Geographic Scope Applicability	on the 5ti NIOSH 10 Rating High High High	MWF* × 1 × 1 × 2	Score 1 1 2	Comments NIOSH 1005 and OSHA 80 US Workplace scenario that exposes employees to Methylene Chloride			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Metric Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	on the 5ti NIOSH 10 Rating High High High Medium	MWF* × 1 × 1 × 2 × 2	Score 1 1 2 4	Comments NIOSH 1005 and OSHA 80 US Workplace scenario that exposes employees to Methylene Chloride 2002, 16 years old			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5: Domain 3: Accessibility/Clar	Metric Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	n the 5t. NIOSH 10 Rating High High High Medium Medium	MWF* × 1 × 1 × 2 × 2 × 1	Score 1 1 2 4 2 2	Comments NIOSH 1005 and OSHA 80 US Workplace scenario that exposes employees to Methylene Chloride 2002, 16 years old Characterized by a range, but also provides geometric mean.			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Metric Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	on the 5ti NIOSH 10 Rating High High High Medium	MWF* × 1 × 1 × 2 × 2	Score 1 1 2 4	Comments NIOSH 1005 and OSHA 80 US Workplace scenario that exposes employees to Methylene Chloride 2002, 16 years old			
Analytic Method: EVALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5: Domain 3: Accessibility/Clar	Metric Methodology Geographic Scope Applicability Temporal Representativeness Sample Size rity Metadata Completeness	n the 5t. NIOSH 10 Rating High High High Medium Medium	MWF* × 1 × 1 × 2 × 2 × 1	Score 1 1 2 4 2 2	Comments NIOSH 1005 and OSHA 80 US Workplace scenario that exposes employees to Methylene Chloride 2002, 16 years old Characterized by a range, but also provides geometric mean.			

Source Citation:		F., Watkins, D. S., Shulman, S. e OSHA methylene chloride P		R. W.,Ko	vein, R	. J 2002. Engineering controls for furniture strippers					
Type of Data Source Hero ID	Occupation 3588505	Occupational Exposure; Monitoring Data; 3588505									
EVALUATION											
Domain		Metric	Rating	MWF*	Score	Comments					
	Metric 7:	Metadata Completeness	Medium	× 1	2	Method addresses variability and uncertainty.					
Overall Quality I	Determination	${f n}^{\dagger}$	High		1.6						

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		N.,Shih, T. S.,Chang, C. H.,Char aircraft paint stripping and sp				npande, C. G 2006. Exposure assessment of organic			
Гуре of Data Source (nal Exposure; Monitoring Data;	raying work	ers. Scie	ince or t	ne Iotai Environment.			
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description (Subcategory of Use):			Airplane						
Physical Form:			liquid, va	por					
	Route of Exposure:			l					
Exposure Concentration (Unit):			Personal appm w/Si			ppm w/SD of 40.21 ppmArea Average: 84.07			
Number of Samples:			33						
Number of Sites:			1						
Type of Measurement or Method:			TWA						
Worker Activity:			Stripping aircraft paint						
Type of Sampling:			personal, area						
	Exposure Duration:			12 hour shifts					
Exposure Frequency			varies Ceiling and floor fans/exhaust. Respirators CLA-1210 (council of labor affairs)						
	l & percer	nt Exposure Reduction:							
PPE:									
Analytic Method:									
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabili	ty								
N	Metric 1:	Methodology	High	× 1	1	Method cited and described.			
Domain 2: Represer	ntative								
_	Metric 2:	Geographic Scope	Low	$\times 1$	3	Taiwan			
N	Metric 3:	Applicability	High	\times 2	2	Workplace scenario that exposes employees to Methylene Chloride $$			
N	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2005, 13 years old			
<u> </u>	Metric 5:	Sample Size	Medium	× 1	2	Provides an average for a series of data sets.			
Domain 3: Accessib	ility/Clar	ity							
	Metric 6:	Metadata Completeness	Medium	$\times 1$	2	Has baseline metadata			

		Collei	nueu nom p	revious	page				
Source Citation:		N.,Shih, T. S.,Chang, C. H.,Cr aircraft paint stripping and				-	Exposure assessment of organic		
Type of Data Source Hero ID	Occupational Exposure; Monitoring Data; 3589081								
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score		Comments		
Domain 4: Variab	U	ncertainty Metadata Completeness	Low	× 1	3	None addressing data			
Overall Quality D	etermination	n [†]	Medium		1.9				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	urce Citation: Ryan, T. J 2002. Survey of waste comminglers' VOC exposures. Journal of the Air and Waste Management Ass (1990-1992).								
Type of Data Source Hero ID	pe of Data Source Occupational Exposure; Monitoring Data;								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Disposal						
Life Cycle Descrip	tion (Subca	ategory of Use):	Laborator	ry dispos	al				
Physical Form:	`	<i>,</i>	liquid, va						
Route of Exposure	e:		inhalation						
Exposure Concent	ration (Uni	t):	personal:	0.4 - 557	.0 ppm	area: 0.1 - 809.9			
Number of Sample	es:		personal:	33area:	32				
Number of Sites:			12						
Type of Measurem	nent or Met	hod:	TWA						
Worker Activity:	Worker Activity:			lab waste	e into 5	5 gal drums			
Type of Sampling:			personal,						
	Sampling Location:			Hazardous Waste Container Sites					
Exposure Duration			varies						
Exposure Frequence			varies						
	ol & percer	nt Exposure Reduction:	varies varies						
PPE:									
Analytic Method:			EPA Method 8260B						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabi	lity								
Domain 1. Renadi	Metric 1:	Methodology	High	× 1	1	EPA Method 8260B			
	MICUIC 1.	Wethodology	IIIgii			ELA Method 8200D			
Domain 2: Repres	entative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	$\overline{4}$	Report form 2002			
	Metric 5:	Sample Size	Medium	\times 1	2	Were not provided with each data point			
D	:1-:1:4/01	•••							
Domain 3: Accessi	- /		Ι	v 1	9				
	Metric 6:	Metadata Completeness	Low	× 1	3	meta data was given as ranges (time, exposure, etc.)			
		Con	itinued on r	next page)				

	COILLII	ucu mom	previous	Page	
Source Citation:	Ryan, T. J 2002. Survey of waste comme (1990-1992).	minglers' Vo	OC expos	ures. J	Journal of the Air and Waste Management Association
Type of Data Source Hero ID	Occupational Exposure; Monitoring Data 3589795	;			
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Domain 4: Variab	oility and Uncertainty				
_	Metric 7: Metadata Completeness	Medium	× 1	2	Discussion on limitations and variations.
Overall Quality I	${ m Petermination}^{\dagger}$	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

furniture pe of Data Source Occupat	Grevenkamp, A.,Occupational, Safety,Health, Administration. 2007. Overexposure and control of methylene chloride in furniture stripping operation. Journal of Occupational and Environmental Hygiene. Occupational Exposure; Monitoring Data; 3590014							
TRACTION		D 4						
Parameter		Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit):			Use Furniture Stripping vapor inhalation First visit: 108 ppm (8-hr TWA); 153-634 ppm (STEL); Follow up: 61 ppm (8-hr TWA); 330-380 ppm (STEL) – additional data for various					
Number of Samples: Number of Sites: Type of Measurement or M Worker Activity: Number of Workers: Type of Sampling: PPE:	ethod:	visits various 1 TWA furniture stripping 1 personal full-face elastomeric respirator with organic vapor cartridges and impervious gloves and an apron						
ALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability Metric 1	: Methodology	High	× 1	1	OSHA			
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness			$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	$1\\2\\4$	US Furniture Stripping			
Motrie A		ss Medium \times 2 4 2007 - more than 10 years old High \times 1 Individual data points						
Metric 4 Metric 5	5: Sample Size							

		munuca nom p		I0-					
Source Citation:	1, , , , , , , , , , , , , , , , , , ,	Grevenkamp, A.,Occupational, Safety, Health, Administration. 2007. Overexposure and control of methylene chloride in a furniture stripping operation. Journal of Occupational and Environmental Hygiene.							
Type of Data Source	Occupational Exposure; Monitoring	Data;							
Hero ID	3590014	,							
EVALUATION									
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
Domain 4: Variab	oility and Uncertainty								
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability				
Overall Quality D	Petermination [†]	High		1.4					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Lewis, F. A 1980. Health Hazard Eva Warminster, Pennsylvania.	aluation Dete	rminatio	n, Repo	rt No. HHE-79-141-711, Fischer and Porter Company,				
Type of Data Source Occupational Exposure; Monitoring Date Hero ID 3653519	sa;							
EXTRACTION								
Parameter	Data							
	**							
Life Cycle Stage:	Use	с .						
Life Cycle Description (Subcategory of Use):		se for wire	e coatin	g (instrumentation inside of water pipes)				
Physical Form:	Vapor Inhalatio							
Route of Exposure:								
Exposure Concentration (Unit):	Undetect	ea						
Number of Samples: Number of Sites:	16 1							
Type of Measurement or Method:	8 hr TW	۸						
Worker Activity:	Mixing E							
Type of Sampling:								
Exposure Duration:	,	Personal, Area 8 hour shift						
Engineering Control & percent Exposure Reduction:		Laboratory Hood Fans						
PPE:	Protectiv		1 (111)					
Analytic Method:	NIOSH N		&CAM	#127				
111011 010 112011001	11100111	1001104 1		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
EVALUATION								
Domain Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliability								
Metric 1: Methodology	High	\times 1	1	NIOSH Method P&CAM #127				
Domain 2: Representative	TT:1.	v. 1	1	TTG.				
Metric 2: Geographic Scope Metric 3: Applicability	High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{1}{2}$	US				
Metric 3: Applicability Metric 4: Temporal Representativenes	High s Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	6	Workplace that has potential exposure to employees				
Metric 5: Sample Size	Low	× 2 × 1	3	1979, 39 years old and prior to most recent PEL				
Metric 5: Sample Size	LOW	X 1	<u>.</u>	No methylene chloride was detected, no specific data about where samples were taken.				
Domain 3: Accessibility/Clarity								
Metric 6: Metadata Completeness	Medium	× 1	2	Missing sample durations and other metadata				
Theorie V. Thousand Completeness	modram			Amount sample datasions and other meadasia				
Domain 4: Variability and Uncertainty								
	Continued on a	next page	9					

			maca mom p		F0 -	
Source Citation:	,	A 1980. Health Hazard Ev r, Pennsylvania.	raluation Deter	mination	ı, Repo	rt No. HHE-79-141-711, Fischer and Porter Company,
Type of Data Source	Occupation	nal Exposure; Monitoring Da	ta;			
Hero ID	3653519					
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
	Metric 7:	Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality I	Determination	$ m n^{\dagger}$	Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Hall, RM; Martinez, KF; Jensen, PA. 1995. and Environmental Hygiene. Type of Data Source Occupational Exposure; Monitoring Data; 3808905			. Control of	Control of methylene chloride" furniture stripping dip tank. Applied Occupational					
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description	(Subca	ategory of Use):	Furniture	Strippin	ıg				
Physical Form:			vapor						
Route of Exposure:			inhalation	ı					
Exposure Concentration	n (Uni	t):	7 - 67 ppi	m 8-hr T	WA				
Number of Samples:			27						
Number of Sites:			1						
Type of Measurement of	or Met	hod:	TWA						
· ·	Worker Activity:			dip strip	ping				
Number of Workers:			2						
Type of Sampling:			personal						
Exposure Duration:			various						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability									
	ric 1:	Methodology	High	× 1	1	NIOSH			
Domain 2: Representat	ive								
•	ric 2:	Geographic Scope	High	\times 1	1	US			
	ric 3:	Applicability	High	$\times 2$	$\overset{-}{2}$	furniture dip stripping			
	ric 4:	Temporal Representativeness	Low	$\times 2$	6	1995 - more than 20 years old and prior to most recent PEL			
Met	ric 5:	Sample Size	High	\times 1	1	Individual data points			
Domain 3: Accessibility	//Clar	itv							
	ric 6:	Metadata Completeness	Medium	× 1	2	concentration ranges and sampling time provided			
Domain 4: Variability a	and Ui	ncertainty							
	ric 7:	Metadata Completeness	Medium	\times 1	2	Some discussion of uncertainty and variability			
11100	,								

	Continu	ed nom p	710110415	Page	
Source Citation:	Hall, RM; Martinez, KF; Jensen, PA. 1995. and Environmental Hygiene.	Control of	methyle	ne chloride	"furniture stripping dip tank. Applied Occupational
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3808905				
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Overall Quality I	0 etermination †	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Data Source Occupational Exposure; Completed Exposure or Risk Assessments;							
EXTRACTION Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Beage. Life Cycle Description (Subo	estagory of Uso).	Paint Stri	nning					
Physical Form:	ategory or ose).	vapor	pping					
Route of Exposure:		inhalation	1					
Exposure Concentration (Ur	nit):	633-1,017		(TWA)				
Number of Samples:)-	7	8/ 1119	(=1)				
Type of Measurement or Me	thod:	TWA						
Worker Activity:			pping - l	Non-Spe	ecific Workplace Settings			
Number of Workers:		3	0	1				
Type of Sampling:		personal						
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability								
Metric 1:	Methodology	High	× 1	1	IARC, 2010			
Domain 2: Representative								
Metric 2:	Geographic Scope	High	× 1	1	US			
Metric 3:	Applicability	High	$\times 2$	2	Paint Stripping			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1980 - more than 20 years old			
Metric 5:	Sample Size	Medium	× 1	2	ranges provided			
Domain 3: Accessibility/Cla	nity							
Metric 6:	Metadata Completeness	Low	× 1	3	range provided - breathing zone			
mionic o.	Motada Completeness	DOW .	/\ I	-	range provided breathing zone			
Domain 4: Variability and U	Incertainty							
Metric 7:		Low	\times 1	3	uncertainy and variability not discussed			
					· ·			
Overall Quality Determinati	†	Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Eu,. 2007. Impact assessment of potential restrictions on the marketing and use of dichloromethane in paint strippers. Revised final report-Annexes.							
Type of Data Source Occ	Occupational Exposure; Completed Exposure or Risk Assessments; 3808951							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description	(Subca	tegory of Use):	Paint Str	ipping				
Physical Form:	(, , , , , , , , , , , , , , , , , , ,	vapor	11 0				
Route of Exposure:			inhalation	1				
Exposure Concentration	on (Uni	t):	2.2-428 m	ig/m3 (8-	hr TW	A)		
Number of Samples:	`	,	4	0,				
Type of Measurement	or Met	hod:	TWA					
Worker Activity:			Non-Spec	ific Work	xplace S	ettings - Unknown		
Type of Sampling:			personal					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliability								
· ·	tric 1:	Methodology	High	× 1	1	EU, 2007		
Domain 2: Representa	tive							
	tric 2:	Geographic Scope	Medium	$\times 1$	2	Finland		
	tric 3:	Applicability	High	$\times 2$	2	Paint Stripping		
	tric 4:	Temporal Representativeness	Low	$\times 2$	6	1997-1998 - more than 20 years old		
Met	tric 5:	Sample Size	High	× 1	1	Individual data points		
Domain 3: Accessibilit	v/Clari	tv						
	tric 6:	Metadata Completeness	Medium	\times 1	2	personal samples		
Domain 4: Variability	and Un	certainty						
· ·	tric 7:	Metadata Completeness	Medium	× 1	2	Some discussion of uncertainty and variability		
Overall Quality Determination [†]		Medium		1.8				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Oecd, 2011. SIDS initial assessment profile: Dichloromethane (methylene chloride).								
0.2	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3808975								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description	on (Subca	tegory of Use):	All uses						
Physical Form:	,	,	Vapor						
Route of Exposure:			Inhalation						
Exposure Concentra	tion (Unit	t):	0.004-318 mg/s	m3					
Worker Activity:			All uses						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabilit	V								
	Tetric 1:	Methodology	High	\times 1	1	SIDS Initial Assessment Profile			
Domain 2: Represen	tative								
	Ietric 2:	Geographic Scope	Medium	\times 1	2	Europe			
N	Ietric 3:	Applicability	Medium	$\times 2$	4	no particular OES specified			
N	Ietric 4:	Temporal Representativeness	Low	$\times 2$	6	unknown			
N	Metric 5:	Sample Size	Low	× 1	3	range provided			
Domain 3: Accessibi	ility/Clari	ty							
	Metric 6:	Metadata Completeness	${\bf Unacceptable}$	× 1	4	no discussion of data			
Domain 4: Variabilit	ty and Un	certainty							
	Tetric 7:	Metadata Completeness	Low	× 1	3	no discussion of uncertainy or variability			
Overall Quality Dete	ermination	n [†]	Unacceptable		4	Metric Mean Score: 2.6.			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	NIOSH. 1991. In-depth survey report. The control of methylene chloride in furniture stripping at Association for Ret Citizens Washington County Chapter, Inc. Technical Report ECTB number: 170-18a.								
Type of Data Source Hero ID	3808979	nal Exposure; Monitoring Data;							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Furniture	Strippin	ıg				
Physical Form:			vapor						
Route of Exposure			inhalation						
Exposure Concent	tration (Uni	it):	613-1,152 (8-hr TW			ample times, existing ventilation); 13-27 ppm tilation)			
Number of Sample	es:		12	,		····			
Number of Sites:			1						
Worker Activity:			furniture	stripping	ξ				
	Type of Sampling: Sampling Location:			personal various					
Sampling Location									
Exposure Duration	n:		various						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	NIOSH			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Furniture Stripping			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1991 - more than 20 years old and prior to most recent PEL			
	Metric 5:	Sample Size	High	× 1	1	Individual data points			
Domain 3: Access	sibility/Clar	ity							
	Metric 6:	Metadata Completeness	High	× 1	1	provides key information			
Domain 4: Variab	ility and Uı	ncertainty							
	Metric 7:	Metadata Completeness	Medium	× 1	2	Some discussion of uncertainty and variability			
		Cor	tinued on r	evt nage					

	continued from previous page								
Source Citation:	NIOSH. 1991. In-depth survey report. The control of methylene chloride in furniture stripping at Association for Retarded Citizens Washington County Chapter, Inc. Technical Report ECTB number: 170-18a.								
Type of Data Source	Occupational Exposure; Monitoring Da								
Hero ID	3808979	,							
EVALUATION									
Domain	Metric	Rating	MWF* Score	Comments					
Overall Quality I	Determination [†]	High	1.6						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	U.S, E. P. A 2014. TSCA work plan chemical risk assessment, methylene chloride: paint stripping use. Occupational Exposure; Completed Exposure or Risk Assessments; 3809029						
EXTRACTION			D. A				
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Stri	ipping			
EVALUATION							
Domain		Metric	Rating	MWF*	Score	Comments	
Domain 1: Reliability							
	Metric 1:	Methodology	High	× 1	1	EPA Risk Assessment	
Domain 2: Repres	sentative						
Bolliam 2. Repro-	Metric 2:	Geographic Scope	High	\times 1	1	US facilities	
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope	
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	data from 2014	
	Metric 5:	Sample Size	Medium	× 1	2	statistics given, discrete data not available	
Domain 3: Access	sibility/Clar	itv					
	Metric 6:	Metadata Completeness	High	\times 1	1	use in scope	
Domain 4: Variab	sility and II.	acortainty					
Domain 4. Varian	Metric 7:	Metadata Completeness	High	× 1	1	detailed uncertainty section	
Overall Quality Determination [†]					1.1		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

· · · · · · · · · · · · · · · · · · ·	92. Health Hazard Evaluation.									
Type of Data Source Occupatio Hero ID 3809433	nal Exposure; Monitoring Data;									
EXTRACTION										
Parameter		Data								
Life Cycle Stage:		Use	Use							
Life Cycle Description (Subca	ategory of Use):	Paint stri	pping							
Physical Form:		liquid, va								
Route of Exposure:		inhalation								
Exposure Concentration (Uni	it):	ND-523 p	pm							
Number of Samples:		42								
Number of Sites:	1 1.	1 short terr		X 7 A						
Type of Measurement or Met Worker Activity:	anod:	Stripping								
Number of Workers:		5 tripping	rumuur	5						
Type of Sampling:		Personal,	area							
Exposure Duration:				Variable						
Exposure Frequency:		Variable								
PPE:		rubber aprons, full length rubber gauntlets, a face shield, and plastic								
		upper arm covers								
Analytic Method:		NIOSH method #1005								
EVALUATION										
Domain	Metric	Rating	MWF*	Score	Comments					
Domain 1: Reliability										
Metric 1:	Methodology	High	\times 1	1	Niosh Method #1005					
Damain 2. Damagantating										
Domain 2: Representative Metric 2:	Geographic Scope	High	× 1	1	US					
Metric 3:	Applicability	High	$\stackrel{\wedge}{\times} \stackrel{1}{2}$	2	Workplace scenario that exposes employees to Methylene Chlo-					
Metric 9.	· ·	111811	/\ <u>2</u>	-	ride					
Metric 4:	Temporal Representativeness	Low Medium	$\times 2 \times 1$	6	1995,23 years old and prior to most recent PEL					
Metric 5:	Metric 5: Sample Size			2	Decent characterization					
Domain 3: Accessibility/Clar	Domain 3: Accessibility/Clarity									
Metric 6: Metadata Completeness		High	\times 1	1	Complete Metadata					
	Con	ntinued on r	next page	,						

				1 0	
Source Citation: Type of Data Source Hero ID	Niosh,. 1992. Health Hazard Evalua Occupational Exposure; Monitoring 3809433				
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Domain 4: Variab	ility and Uncertainty Metric 7: Metadata Completeness	s Medium	× 1	2	Method addresses variability and uncertainty.
Overall Quality D	Medium		1.7		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Tno,. 1999	9. Methylene chloride: Advantag	ges and Dra	wbacks o	f Possib	ele Market Restrictions in the EU.		
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;							
Hero ID	3809449							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Manufact	ure				
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact					
Physical Form:	501011 (54500		Vapor	aro				
Route of Exposur	e:		Inhalation	1				
Exposure Concen	tration (Uni	t):	219-374 n	ng/m3				
Worker Activity:			Maintena	nce				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	ility							
Bolliam 1. Itolias	Metric 1:	Methodology	Low	\times 1	3	Not Specified		
D	4-4:							
Domain 2: Repres	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU		
	Metric 3:	Applicability	High	\times 1 \times 2	2	manufacturing in scope		
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	Report from 1999 but many data sources are from earlier		
	Metric 5:	Sample Size	Medium	$\times 2 \times 1$	2	Range and mean given, but no discrete data		
_	1,100110 0.	Sumpre Size	Modram			realige and mean given, but no discrete data		
Domain 3: Access	sibility/Clar	ity						
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata		
D	:1:4 1 11							
Domain 4: Variab	-		Ι	v 1	9	NY (1')		
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.		
Overall Quality D	lotorminotic	nt	Low		2.3			
Overall Quality L	eterminatio	11.	LOW		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.			
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;								
Hero ID	3809449	3809449							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Manufact	uro					
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact						
Physical Form:	otion (bubee	negory or ose).	Vapor	urc					
Route of Exposur	e:		Inhalation	ı					
Exposure Concern		t):	3.5->35 n	ng/mg3 (8-hr TV	WA)			
Worker Activity:		,				t & packagingpersonnel			
v				•		1 0 01			
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
Domain 1. Itenab	Metric 1:	Methodology	Low	$\times 1$	3	Not Specified			
									
Domain 2: Repres									
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU			
	Metric 3:	Applicability	High	$\times 2$	2	manufacturing in scope			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier			
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data			
Domain 3: Access	sibility/Clar	itv							
Domain 6. Necesi	Metric 6:	Metadata Completeness	Low	$\times 1$	3	Indicates sample type but no other metadata			
		•				- **			
Domain 4: Variability and Uncertainty									
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality D	eterminatio	\mathbf{n}^{\intercal}	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity:			Processing Formulation of Products Aerosols Inhalation <180 mg/m3 Filling and packing					
EVALUATION		Metric	Datina	MWF*	G	Comments		
Domain		Metric	Rating	M W F	Score	Comments		
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	Not Specified		
Domain 2: Repres	sentative							
	Metric 2:	Geographic Scope	Medium	\times 1	2	data from EU		
	Metric 3:	Applicability	High	$\times 2$	2	formulation in scope		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier		
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data		
Domain 3: Access	ibility/Clar	its						
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata		
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	Not discussed.			
Overall Quality Determination [†]			Low		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						le Market Restrictions in the EU.		
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;							
Hero ID	3809449							
EXTRACTION			_					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	otion (Subca	ategory of Use):	Adhesives	3				
Physical Form:		, , ,	aerosol					
Route of Exposur	e:		Inhalation	1				
Exposure Concent	tration (Uni	t):	3.5 to 1,50	00 mg/m	13			
Worker Activity:			Spray Ad	hesives				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	ility							
Domaii 1. Ichab	Metric 1:	Methodology	Low	× 1	3	Not Specified		
Domain 2: Repres		G 1: G	M 1:	1	0			
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU		
	Metric 3: Metric 4:	Applicability Town and Bonnesontations	High Low	$\times 2 \times 2$	2	Adhesive use in scope		
	Metric 4: Metric 5:	Temporal Representativeness	Low Medium	× 2 × 1	6	Report from 1999 but many data sources are from earlier		
=	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data		
Domain 3: Access	sibility/Clar	ity						
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata		
D ' 4 37 ' 1	.1., 1.77							
Domain 4: Variab			т	1	0	27. 10.		
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.		
Overall Quality D	lotorminatio	nt	Low		2.3			
Overan Quanty D	eteriiinatio	11.	LOW		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						le Market Restrictions in the EU.		
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;							
Hero ID	3809449							
EXTRACTION			. .					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	otion (Subca	ategory of Use):	Consumer	r Paint S	tripping			
Physical Form:		7	Aerosols		11 0	,		
Route of Exposur	e:		Inhalation	n				
Exposure Concent	tration (Uni	t):	35-14,100	mg/m3;	majorit	y < 1770 mg/m3		
Worker Activity:			Consumer	r Paint S	tripping			
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliab	ility							
Domain 1. Itemas	Metric 1:	Methodology	Low	\times 1	3	Not Specified		
Domain 2: Repres								
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU		
	Metric 3:	Applicability	High	$\times 2$	2	No Comment.		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier		
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data		
Domain 3: Access	sibility/Clar	itv						
Bollani G. Hooos.	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata		
		-						
Domain 4: Variab	oility and Ur							
	Metric 7:	Metadata Completeness	Low	\times 1	3	Not discussed.		
		1						
Overall Quality D	eterminatio	\mathbf{n}^{\intercal}	Low		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449								
EXTRACTION Parameter	Data								
Life Cycle Stage:			Use						
Life Cycle Descript	tion (Subca	ategory of Use):				g with good ventilation (assumed to be same			
Physical Form:			Vapor	pational (exposur	es in report)			
Route of Exposure	:		Inhalation	ı					
Exposure Concentration (Unit):		460-2980 ventilated	-,	8-hr TV	NA) unventilated; 60-400 mg/m3 (8-hr TWA)				
Worker Activity:					tripping	g with good ventilation			
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabil	lity								
	Metric 1:	Methodology	Low	\times 1	3	Not Specified			
Domain 2: Represe	entative								
=	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU			
	Metric 3:	Applicability	High	$\times 2$	2	No Comment.			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier			
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data			
Domain 3: Accessi	bility/Clar	itv							
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata			
Domain 4: Variabi	lity and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Determination †		Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.			
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;								
Hero ID	3809449	3809449							
EXTRACTION			. .						
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Stripping						
Physical Form:		,	Vapor						
Route of Exposur	e:		Inhalation	n					
Exposure Concent	tration (Uni	t):	18-7000 n	ng/m3 (8	-hr TW	YA)			
Worker Activity:			Immersion	n strippir	ng of wo	ood			
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
Domain 1. Itolias	Metric 1:	Methodology	Low	\times 1	3	Not Specified			
D : 0 D									
Domain 2: Repres		Caamanhia Caana	Medium	v 1	9				
	Metric 2: Metric 3:	Geographic Scope Applicability	Meaium High	$\times 1 \times 2$	$\frac{2}{2}$	data from EU			
	Metric 4:	Temporal Representativeness	Low	$\times 2 \times 2$	6	No Comment. Report from 1999 but many data sources are from earlier			
	Metric 4:	Sample Size	Medium	× 2 × 1	$\frac{0}{2}$	Range and mean given, but no discrete data			
	Metric 5.	Sample Size	Medium			Range and mean given, but no discrete data			
Domain 3: Access	sibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata			
D	.1								
Domain 4: Variab	-			-					
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.			
Oronoll Ouglites D	\atamoinat:-	†	T		2.3				
Overall Quality D	eterminatio	11.	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.				
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;									
Hero ID	3809449	3809449								
EXTRACTION			. .							
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Stri	ipping						
Physical Form:		,	Aerosols							
Route of Exposur	e:		Inhalation	n						
Exposure Concent	tration (Uni	t):	98-321 mg	g/m3 (8-	hr TWA	$\Lambda)$				
Worker Activity:			Aircraft p	aint strij	pping					
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ility									
Domain 1. Itolias	Metric 1:	Methodology	Low	\times 1	3	Not Specified				
D : 0 D										
Domain 2: Repres		Caamankia Caana	Medium	v 1	9					
	Metric 2: Metric 3:	Geographic Scope Applicability	Medium High	$\times 1 \times 2$	$\frac{2}{2}$	data from EU No Comment.				
	Metric 4:	Temporal Representativeness	Low	$\times 2 \times 2$	6	Report from 1999 but many data sources are from earlier				
	Metric 4:	Sample Size	Medium	× 2 × 1	$\frac{0}{2}$	Range and mean given, but no discrete data				
	Metric 5.	Sample Size	Medium	× 1		Range and mean given, but no discrete data				
Domain 3: Access	sibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata				
				<u></u>						
Domain 4: Variab	-		-	_						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.				
O II O III - D	\	†	Т		0.2					
Overall Quality D	eterminatio	n'	Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449								
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity:			Use Stripping Vapor Inhalation <350 mg/m3 Immersion stripping of metal (with appropriate protection measures)							
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments				
		1120110	14441118							
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	Not Specified				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU				
	Metric 3:	Applicability	High	$\times 2$	2	No Comment.				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier				
	Metric 5:	Sample Size	Medium	\times 1	2	Range and mean given, but no discrete data				
Domain 3: Access	sibility/Clari	itv								
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata				
Domain 4: Variab	sility and Ur	ncertainty								
Domain 4. Variati	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.				
Overall Quality Determination [†]		Low		2.3						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.	
Type of Data Source							
Hero ID	3809449						
EXTRACTION			. .				
Parameter			Data				
Life Cycle Stage:			Use				
ř J	Life Cycle Description (Subcategory of Use):			Strippin	g		
Physical Form:		,	Vapor	11	O		
Route of Exposur	e:		Inhalation	n			
Exposure Concent	tration (Uni	t):	25-3812 n	ng/m3 (8	-hr TW	(A)	
Worker Activity:			Furniture	Strippin	g (with	out adequate control measures)	
EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliab	ility						
Domain 1. Itemas	Metric 1:	Methodology	Low	\times 1	3	Not Specified	
Domain 2: Repres							
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU	
	Metric 3:	Applicability	High	$\times 2$	2	No Comment.	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier	
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data	
Domain 3: Access	sibility/Clar	itv					
Bollani G. Hooos.	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata	
Domain 4: Variab	oility and Ui						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.	
		1					
Overall Quality D	eterminatio	\mathbf{n}^{\intercal}	Low		2.3		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449								
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use):			Use Cleaning agent in foam industry or aux blowing agent, releasing agent in PU molding						
Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity:			Vapor Inhalation 7-1,770 mg/m3 Cleaning agent in foam industry or aux blowing agent, releasing agent in PU molding						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabili	ity Metric 1:	Methodology	Low	× 1	3	Not Specified			
Domain 2: Represe	ntative								
<u>*</u>	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU			
	Metric 3:	Applicability	High	$\times 2$	2	PU foam			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier			
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data			
Domain 3: Accessib	oility/Clari	itv							
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata			
Domain 4: Variabil	-		Low	v 1	9	Not Proved			
-	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality De	terminatio	${f n}^{\dagger}$	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449								
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity:			Use Pharmaceuticals Vapor Inhalation 3.5-106 mg/m3 Pharmaceutical processing						
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabi	lity		3			<u> </u>			
Domain 1. Renabi	Metric 1:	Methodology	Low	× 1	3	Not Specified			
Domain 2: Represe	entative								
	Metric 2:	Geographic Scope	Medium	\times 1	2	data from EU			
	Metric 3:	Applicability	High	$\times 2$	2	pharmaceuticals in scope			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier			
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data			
Domain 3: Accessi	bility/Clari	itv							
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata			
Domain 4: Variabi	ility and Ur	ncertainty							
		Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Determination [†]			Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

						ble Market Restrictions in the EU.
0.2	-	nal Exposure; Completed Expos	ure or Risk	Assessm	ents;	
	3809449					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descripti	ion (Subca	ategory of Use):		Triacetat	e and I	Film Base Production
Physical Form:	(Vapor			
Route of Exposure:			Inhalation	n		
Exposure Concentra	ation (Uni	t):	0-350 mg	/m3 (8-h)	r TWA)	
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabili	+					
	Metric 1:	Methodology	Low	× 1	3	Not Specified
	WICUITO 1.	Wethodology	LOW	× 1	-	rvot specifica
Domain 2: Represer	ntative					
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU
I	Metric 3:	Applicability	High	$\times 2$	2	Use in scope
ľ	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier
<u>1</u>	Metric 5:	Sample Size	Medium	$\times 1$	2	Range and mean given, but no discrete data
D	:1:4/01	4				
Domain 3: Accessib	Metric 6:	Metadata Completeness	Low	× 1	3	I. Partin annula to a last an eather model by
	wietric o:	Metadata Completeness	LOW	X 1	- J	Indicates sample type but no other metadata
Domain 4: Variabili	itv and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	$\times 1$	3	Not discussed.
		*				
Overall Quality Det	terminatio	n^{\dagger}	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449							
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity:			Manufacture Manufacture/Distribution Vapor Inhalation 3.5-63 mg/mg3 (8-hr TWA) Production personnelPlant & packagingpersonnelTanker drivers:						
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments			
-			1,000	111111					
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	Not Specified			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU			
	Metric 3:	Applicability	High	$\times 2$	2	manufacturing in scope			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier			
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data			
Domain 3: Access	sibility/Clari	itv							
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Determination [†]			Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449							
EXTRACTION Parameter			Data					
1 arameter			Data					
Life Cycle Stage:			Processing	_				
Life Cycle Descrip	tion (Subca	itegory of Use):		emical P	rocessin	ng (closed systems)		
Physical Form:			Vapor					
Route of Exposure			Inhalation		TT74 \			
Exposure Concentration (Unit):		23 mg/m3	3 (8-hr T	WA)				
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabi	lity							
Bollani I. Itoliasi	Metric 1:	Methodology	Low	\times 1	3	Not Specified		
Domain 2: Represe	entative							
-	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU		
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier		
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data		
Domain 3: Accessi	bility/Clari	ity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata		
Domain 4: Variabi	ility and Ur	ncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.		
Overall Quality Determination †		Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Tno,. 1999	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.								
Type of Data Source		nal Exposure; Completed Expos	ure or Risk	Assessm	ents;					
Hero ID	3809449									
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Stage: Life Cycle Description (Subcategory of Use):			Degreasin	ď						
Physical Form:	otion (bubee	negory or ose).	Vapor	8						
Route of Exposur	e:		Inhalation)						
Exposure Concen		t):	14-1000 n		nean 280	0 mg/m3				
Worker Activity:		• /	Cold Deg			- 6) -				
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ility									
Bolliam 1. Itolias	Metric 1:	Methodology	Low	\times 1	3	Not Specified				
Domain 2. Danna										
Domain 2: Repres	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU				
	Metric 2:	Applicability	High	$\stackrel{\times}{\times} \stackrel{1}{2}$	2	degreesing in scope				
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	Report from 1999 but many data sources are from earlier				
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data				
_	1,100110 0.	Sumpre Size	mediam			realige and mean given, but no discrete data				
Domain 3: Access	sibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata				
Domain 4: Variability and Uncertainty		т.	-							
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.				
0 11 0 11: 5		+			0.0					
Overall Quality D	eterminatio	n'	Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449								
EXTRACTION Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Description (Subcategory of Use):						ilar to other open industrial applications such				
Physical Form:			_	g, gauze	and fab	oric coating)				
Route of Exposure:			Vapor Inhalation	า						
Exposure Concentration (Unit):			110 mg/n							
Worker Activity:			Food extraction (also similar to other open industrial applications such as printing, gauze and fabric coating)							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	oility									
	Metric 1:	Methodology	Low	× 1	3	Not Specified				
Domain 2: Repres	sentative									
•	Metric 2:	Geographic Scope	Medium	\times 1	2	data from EU				
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier				
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data				
Domain 3: Access	sibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata				
Domain 4: Varial	sility and IIs	naartainty								
Domain 4. Variat	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.				
Overall Quality Determination [†]			Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU. Occupational Exposure; Completed Exposure or Risk Assessments; 3809449								
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity:			Use Personal care aerosol use (hairspray, insect repellent) aerosol Inhalation 7 mg/m3 (8- Personal care aerosol use (hairspray, insect repellent)							
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	Not Specified				
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	Medium High Low Medium	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	2 2 6 2	data from EU Use in scope Report from 1999 but many data sources are from earlier Range and mean given, but no discrete data				
Domain 3: Access	sibility/Clari Metric 6:	ity Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata				
Domain 4: Variab	Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	Not discussed.				
Overall Quality Determination [†]		Low		2.3						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ble Market Restrictions in the EU.
Type of Data Source		nal Exposure; Completed Expos	ure or Risk	Assessm	ents;	
Hero ID	3809449					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):		in unvent	ilated r	oom (Dow)
Physical Form:	otion (Subce	ategory or obo).	aerosol	iii uiivoii	nacca i	(2011)
Route of Exposur	e:		Inhalation	n		
	Exposure Concentration (Unit):			m3		
Worker Activity:	,	,	· · · · · · · · · · · · · · · · · · ·		ilated r	oom (Dow)
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	ility					
Domain 1. Itemas	Metric 1:	Methodology	Low	\times 1	3	Not Specified
Domain 2: Repres						
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	data from EU
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Access	sibility/Clar	itv				
Bollium of Hoods	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata
Domain 4: Variab	-					
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
		+	_			
Overall Quality D	eterminatio	n'	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.								
Type of Data Source Hero ID	Occupation 3809449	nal Exposure; Completed Expos	ure or Risk	Assessm	ents;					
	3809449									
EXTRACTION			Data							
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Hair Care	Product	ts					
Physical Form:			aerosol							
Route of Exposur			Inhalation	ı						
Exposure Concent	tration (Uni	t):	3.5-17.7 n	ng/m3 (8	-hr TW	$^{\prime}\mathrm{A})$				
Worker Activity:			Profession	nal salon	use					
-										
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ility									
Domain 1. Ronas	Metric 1:	Methodology	Low	\times 1	3	Not Specified				
D : 0 D										
Domain 2: Repres		Caamanhia Caana	Medium	v 1	9					
	Metric 2: Metric 3:	Geographic Scope Applicability	Meaium High	$\times 1 \times 2$	$\frac{2}{2}$	data from EU				
	Metric 4:	Temporal Representativeness	Low	$\times 2 \times 2$	6	Use in scope Report from 1999 but many data sources are from earlier				
	Metric 4:	Sample Size	Medium	× 2 × 1	$\frac{0}{2}$	Range and mean given, but no discrete data				
	metric 5.	Sample Size	Medium	X 1		Range and mean given, but no discrete data				
Domain 3: Access	sibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	\times 1	3	Indicates sample type but no other metadata				
D										
Domain 4: Variab	-		т.	-						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.				
Orranall Orralitas D	Natamoinati-	†	T		2.3					
Overall Quality D	eterminatio	11.	Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ource Citation:	Niosh, 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.								
Type of Data Source Iero ID		nal Exposure; Monitoring Data;							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subca	ategory of Use):	Furniture	Strippin	g				
Physical Form:			liquid, va	por					
Route of Exposure:			inhalation	ı					
Exposure Concent		t):	2 persona	d: 77, 100	0 ppm3	area: 90, 20, 63			
Number of Samples:			5						
Number of Sites:			1						
Type of Measurement or Method:			1-hour TWA						
Worker Activity:			Stripping furniture						
Number of Workers:			1						
Type of Sampling	1		personal,	area					
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	NIOSH 1005			
Domain 2: Repres	entative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that uses Methylene Chloride			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990, 28 years old and prior to most recent PEL			
	Metric 5:	Sample Size	Medium	× 1	2	Reasonably well characterized.			
Domain 3: Access	ibility/Clar	ity							
	Metric 6:	Metadata Completeness	Medium	× 1	2	Has baseline metadata			
Domain 4: Variab	ility and U	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data			
Overall Quality D	eterminatio	n [†]	Medium		1.9				

Source Citation:	Niosh,. 1990. Walk-through survey report Cincinnati, Ohio.	: Control of	methylen	e chloride in furr	niture stripping at Colonial Furniture Stripping
Type of Data Source	Occupational Exposure; Monitoring Data	;			
Hero ID	3809453				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Niosh,. 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.								
	nal Exposure; Monitoring Data;								
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Use							
Life Cycle Description (Subc	ategory of Use):	Furniture	e Strippin	g					
Physical Form:		vapor							
Route of Exposure:		inhalatio							
Exposure Concentration (Uni	it):	77-100 pj	pm (1-hr	TWA)					
Number of Samples:									
Number of Sites:									
Type of Measurement or Method:			1-hr TWA						
Worker Activity:			furniture dip stripping 1						
Number of Workers:									
Type of Sampling:									
Exposure Duration:		various							
CVALUATION									
Domain	Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliability									
Metric 1:	Methodology	High	× 1	1	NIOSH				
Domain 2: Representative									
Metric 2:	Geographic Scope	High	$\times 1$	1	US				
Metric 3:	Applicability	High	× 2	2	furniture dip stripping				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990 - more than 20 years old and prior to most recent PEL				
Metric 5:	Sample Size	High	\times 1	1	Individual data points				
Domain 3: Accessibility/Clar	ity								
Metric 6:	Metadata Completeness	High	× 1	1	Indicates sample type but no other metadata				
Domain 4: Variability and U	ncertainty								
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data				
2.100110 11									

		umaca nom p	710110415	page	
Source Citation:	Niosh,. 1990. Walk-through survey repo	ort: Control of 1	methylen	e chloride	in furniture stripping at Colonial Furniture Stripping,
Type of Data Source	Occupational Exposure; Monitoring Da	ata;			
Hero ID	3809453	,			
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Overall Quality I	${ m Petermination}^{\dagger}$	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID Cocupational Exposure; Reports for Data or Information Other than Exposure or Release Data; EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Systype of Sampling: EVALUATION Domain Metric Rating MWF* Score Comments IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure or Release Data; Humans. Occupational Exposure or Release Data; Use Life Cycle Stage: Life Cycle Description (Subcategory of Use): Furniture Stripping vapor inhalation Systype of ppm (with controls installed) Stripping and rinsing using tank not specified in review EVALUATION Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC Domain 2: Representative	a a						
EXTRACTION Parameter							
EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Sy-332 ppm; 6 ppm (with controls installed) Worker Activity: Stripping and rinsing using tank Type of Sampling: not specified in review EVALUATION Domain Metric Rating MWF* Score Comments Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC			nal Exposure; Reports for Data	or Informat	tion Othe	er than l	Exposure or Release Data;
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling: EVALUATION Domain Metric Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	Hero ID	3827786					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Furniture Stripping Vapor Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling: EVALUATION Domain Metric Metric 1: Methodology Low X 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC							
Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling: Furniture Stripping vapor inhalation 39-332 ppm; 6 ppm (with controls installed) stripping and rinsing using tank not specified in review EVALUATION Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	Parameter			Data			
Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling: Furniture Stripping vapor inhalation 39-332 ppm; 6 ppm (with controls installed) stripping and rinsing using tank not specified in review EVALUATION Domain Metric Rating MWF* Score Comments Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	Life Cycle Stage			Ugo			
Physical Form: Route of Exposure: Inhalation Sy-332 ppm; 6 ppm (with controls installed) Worker Activity: Type of Sampling: EVALUATION Domain Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	· ·	tion (Subca	ategory of Use):		Strippin	o	
Route of Exposure: inhalation Exposure Concentration (Unit): 39-332 ppm; 6 ppm (with controls installed) Worker Activity: stripping and rinsing using tank Type of Sampling: not specified in review EVALUATION Domain Metric Rating MWF* Score Comments Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC		tion (bubec	negory or obe).		Suippin	6	
Exposure Concentration (Unit): Worker Activity: Stripping and rinsing using tank not specified in review EVALUATION Domain Metric Rating MWF* Score Comments Domain 1: Reliability Metric 1: Methodology Low X 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC		2:			1		
Worker Activity: Type of Sampling: Stripping and rinsing using tank not specified in review EVALUATION Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC			t):			n (with	controls installed)
Type of Sampling: not specified in review EVALUATION Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	-	`	,				,
Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	· ·						
Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC							
Domain 1: Reliability Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	EVALUATION						
Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	Domain		Metric	Rating	MWF*	Score	Comments
Metric 1: Methodology Low × 1 3 IARC 2016 - references Estill et al. 2002, method not specified in IARC	Domain 1: Roliabi	lity					
Demois 9. Democratation	Bolham 1. Iteliabi		Methodology	Low	× 1	3	IARC 2016 - references Estill et al. 2002, method not specified in IARC $$
	Domain 2: Rapras	ontativo					
Metric 2: Geographic Scope High × 1 1 US data	Domain 2. Repress		Geographic Scope	High	× 1	1	US data
Metric 3: Applicability High \times 2 Use in scope							
Metric 4: Temporal Representativeness Medium $\times 2$ 4 data older than 10 years but after PEL							•
Metric 5: Sample Size Low × 1 3 range given but no other statistics		Metric 5:			\times 1	3	range given but no other statistics
	meetre of sample side						
Domain 3: Accessibility/Clarity	FD : 2 1	1 .1 / 61	• .				
Metric 6: Metadata Completeness Low × 1 3 Only sample and exposure type given	Domain 3: Accessi	- /		т.	1	0	
Domain 4: Variability and Uncertainty	Domain 3: Accessi	ibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	Only sample and exposure type given
		Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
		Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given Not discussed.
Overall Quality Determination † Medium 2.1		Metric 6:	Metadata Completeness ncertainty				
• •	Domain 4: Variabi	Metric 6: ility and Un Metric 7:	Metadata Completeness ncertainty Metadata Completeness	Low		3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786								
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Descrip Physical Form: Route of Exposure Exposure Concent Worker Activity: Type of Sampling:	Use Furniture Stripping vapor/aerosol inhalation 44-647 ppm TWA; <2ppm (with controls installed) spray stripping using compressed air not specified in review									
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliabi	ility Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Fairfax & Grevenkamp et al. 2007, method not specified in IARC				
Domain 2: Repres	entative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 2 3	US data Use in scope data less than 10 years old (2007) range given but no other statistics				
Domain 3: Access:	Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness		Low	× 1	3	Only sample and exposure type given				
Domain 4: Variab	ility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	Not discussed.				
Overall Quality De	eterminatio	${f n}^{\dagger}$	Medium		1.9					

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786							
EXTRACTION									
Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure:			Use Paint Stripping vapor/aerosol Inhalation						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	method not specified in IARC			
Domain 2. Danna									
Domain 2: Repres	Metric 2:	Geographic Scope	High	× 1	1	US data			
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	data older than 10 years but after PEL			
	Metric 5:	Sample Size	Low	× 1	3	range given but no other statistics			
Domain 3: Access	Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness			× 1	3	Only sample and exposure type given			
Domain 4: Variab	oility and Un Metric 7:		Low	× 1	3	Not discussed.			
Metric 7: Metadata Completeness Overall Quality Determination [†]			Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Occupa	Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;							
EXTRACTION Parameter		Data						
Farameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Su	ocategory of Use):	Paint Str	ipping					
Physical Form:		vapor						
Route of Exposure:		inhalation						
Exposure Concentration (U		26-120 pp TWA	om TWA					
0.1	Type of Measurement or Method:							
Worker Activity:		chemical not speci:						
Type of Sampling:	Type of Sampling:							
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Demais 1. Deliabilitae								
Domain 1: Reliability Metric	: Methodology	Low	× 1	3	IARC 2016 - references Enander et al. 2004, method not specified in IARC $$			
Domain 2: Representative								
Metric 2	2: Geographic Scope	High	$\times 1$	1	US data			
Metric :		High	$\times 2$	2	Use in scope			
Metric 4	H: Temporal Representativeness	Medium	$\times 2$	4	data older than 10 years but after PEL			
Metric !	5: Sample Size	Low	× 1	3	range given but no other statistics			
Domain 3: Accessibility/C	arity							
Metric (· ·	Low	\times 1	3	Only sample and exposure type given			
					v			
Domain 4: Variability and								
Metric '	7: Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Determination [†]		Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source O	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786								
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Type of Measurement or Method: Worker Activity: Type of Sampling:		Use Paint Stripping vapor inhalation 14-84 ppm (4-hr average) TWA Aircraft paint stripping not specified in review							
EVALUATION Domain		Metric	Rating	MWF*	Caama	Comments			
Domain		Metric	nating	IVI VV F	Score	Comments			
Domain 1: Reliabilit M	y Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Uang et al. 2006, method not specified in IARC			
Domain 2: Represen	tative								
M N M	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	Low High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	3 2 2 3	data from China and Taiwan (non-OECD) Use in scope data 10 years old (2006) range given but no other statistics			
Domain 3: Accessibi									
N	1etric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given			
Domain 4: Variabilit	ty and Ur Ietric 7:	ncertainty Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Dete	erminatio:	n^\dagger	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Iarc, 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786								
EXTRACTION Parameter			Data						
			Use						
· O	Life Cycle Stage:			Б.	DI.				
Life Cycle Descript	tion (Subca	ategory of Use):	Polyureth	nane Foar	n Blowi	ng			
Physical Form: Route of Exposure			vapor inhalatio	2					
Exposure Concenti		t)·	8 ppm T						
Type of Measurem			TWA	****					
Worker Activity:				heat ingr	edients	in oven			
Type of Sampling:			mix and heat ingredients in oven not specified in review						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabil	lity								
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Fairfax & Porter 2006, method not specified in IARC			
Domain 2: Represe	entative								
=	Metric 2:	Geographic Scope	High	$\times 1$	1	US data			
	Metric 3:	Applicability	High	$\times 2$	2	PU foam			
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	data 10 years old (2006)			
	Metric 5:	Sample Size	Low	× 1	3	single exposure concentration given, unclear if it is average, \max , \min , or single discrete value			
Domain 3: Accessi	hility/Clar	itv							
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given			
			20.7	,, <u>+</u>		2 J Pro Grand Corporation of the Brand			
Domain 4: Variabi	lity and Ui	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Determination [†]		Medium		1.9					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling:			Use Printing vapor inhalation 7 ppm cleaning presses not specified in review					
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Lee et al. 2009, method not specified in IARC $$		
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 2 3	US data printing use in scope data less than 10 years old (2009) single exposure concentration given, unclear if it is average, max, min, or single discrete value		
Domain 3: Access	ibility/Clari Metric 6:	ity Metadata Completeness	Low	× 1	3	Only sample and exposure type given		
Domain 4: Variab	ility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	Not discussed.		
Overall Quality D	Overall Quality Determination [†]				1.9			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	,	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786							
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling:			Use Laboratory solvent vapor inhalation below LOD (1ppm) no details not specified in review						
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	oility Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Nomura et al. 2006 method not specified in IARC			
Domain 2: Repres	Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	Medium High Medium Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	2 2 4 3	data from Japan (OECD country) Lab uses in scope data older than 10 years but after PEL Olny indicated as below LOD, no range, statistics, number of samples, etc.			
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	Only sample and exposure type given			
Domain 4: Variab	oility and Un Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	Not discussed.			
Overall Quality Determination [†]			Medium		2.2				

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3827786							
EXTRACTION									
Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Number of Workers:				Use All 1.4 million workers in USA in 1980s and 1990s					
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	IARC document assumed to use appropriate methodology for data gathering			
Di 0- D	4								
Domain 2: Repres	Metric 2:	Caamankia Caana	II: mb	v. 1	1	TIG 1			
	Metric 2: Metric 3:	Geographic Scope Applicability	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{1}{2}$	US data applies to US workers			
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	data over 20 years old			
	Metric 5:	Sample Size	Low	× 1	3	Only states "over 1.4 million workers" no other quantitative data given			
Domain 3: Access	ibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	× 1	3	industry breakdown not provided, only gives total US workers exposed $$			
Domain 4: Variab	ility and II	ocertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	Not discussed.			
Overall Quality Determination [†]		Medium		2.1					

 $[\]star$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Benaise, L. G., Harrison, J. M., Pearce, T. A 2006. Health hazard evaluation report no. HETA-2003-0300-2993, West Virginia Department of Health and Human Resources - Webster Springs District Office.								
Type of Data Source O	Occupational Exposure; Monitoring Data; 3859371								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Environment						
Life Cycle Description	on (Subca	tegory of Use):	Office Work						
Physical Form:			vapor						
Route of Exposure:			inhalation						
Exposure Concentrat	tion (Unit	5):		mated lir	mit of q	atification of 1 ppb			
Type of Sampling:			area general office						
Sampling Location: Analytic Method:			NIOSH Method	1 25/0					
Analytic Method.			MOSII Method	1 2049					
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability	v								
•	Tetric 1:	Methodology	High	× 1	1	NIOSH Method 2549			
Domain 2: Represent	tative								
	letric 2:	Geographic Scope	High	\times 1	1	US			
M	letric 3:	Applicability	Unacceptable	\times 2	8	Not an applicable work scenario			
M	Ietric 4:	Temporal Representativeness	Medium	$\times 2$	4	2003, 15 years old			
M	Ietric 5:	Sample Size	Low	× 1	3	only indicated lower than LOD			
Domain 3: Accessibil	lity/Clari	ty							
M	Ietric 6:	Metadata Completeness	Low	× 1	3	Very basic metadata			
Domain 4: Variabilit	v and Un	certainty							
	fetric 7:	Metadata Completeness	Low	× 1	3	None addressing data			
Overall Quality Dete	ermination	n [†]	Unacceptable		4	Metric Mean Score: 2.6.			
			Continued on nex						

Source Citation:	Benaise, L. G., Harrison, J. M., Pearce, T. A 2006. Health hazard evaluation report no. HETA-2003-0300-2993, West Virginia Department of Health and Human Resources - Webster Springs District Office.							
Type of Data Source	Occupational Exposure; Monitoring Data;							
Hero ID	3859371							
EVALUATION								
Domain	Metric	Rating	MWF* Score	Comments				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

			zard evalua	tion rep	ort no.	HETA-81-065-938, METRO Bus Maintenance Shop,		
	Washington, DC. Occupational Exposure; Monitoring Data;							
Hero ID								
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descripti	ion (Subca	ategory of Use):	Dip tank	Cleaning				
Physical Form:	1011 (5450)	leagery or ese).	vapor	0100111116	•			
Route of Exposure:			Inhalation	n				
Exposure Concentra		t):	None Det	ected				
Number of Samples		'	33					
Number of Sites:			1					
Worker Activity:			Painting	and degre	easing p	parts at a bus maintenance shop		
Number of Workers	s:		17	, ,	0.	· -		
Type of Sampling:			personal,	area				
Sampling Location:			Paint, Degreasing, Welding, and soldering rooms.					
Exposure Duration:			Varies					
Exposure Frequency	•		Varies					
Engineering Contro Analytic Method:	l & percer	nt Exposure Reduction:	Better ventilation suggested in all operations. NIOSH Method S-329					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabili	itv							
	Metric 1:	Methodology	High	× 1	1	NIOSH Method S-329		
Domain 2: Represen	ntativo							
•	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1981, 37 years old and prior to most recent PEL		
	Metric 5: Sample Size			× 1	1	discrete samples given		
Domain 3: Accessib	sility/Clan	itaz						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing exposure frequency and exposure duration per day but		
1	MENIC O.	Metadata Completeness	Medialli	^ I	∠	has other key metadata (sample type and exposure type)		
		Cor	ntinued on i	next nage	3			
		Cor	iviliaca on i	TONE Page	<i>'</i>			

	COII	illueu iroin p	or c v lous	page				
Source Citation:	Love, J. R., Kern, M 1981. Health Washington, DC.	hazard evalua	tion repo	ort no.	HETA-81-065-938,	METRO Bus Maintenance Shop,		
Type of Data Source	Occupational Exposure; Monitoring Da	ata;						
Hero ID	3859376	1 , , , , , , , , , , , , , , , , , , ,						
EVALUATION								
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score		Comments		
Domain 4: Variab	ility and Uncertainty Metric 7: Metadata Completeness	Low	× 1	3	Not discussed.			
	r							
Overall Quality D	${ m etermination}^{\dagger}$	Medium		1.8				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Love, J. H Washingto		zard evalua	tion repe	ort no.	HETA-81-065-938, METRO Bus Maintenance Shop,		
Type of Data Source		nal Exposure; Monitoring Data;						
Hero ID								
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Stage. Life Cycle Descript	tion (Subce	ategory of Use):	Painting					
Physical Form:	oon (bubce	itegory or ose).	vapor					
Route of Exposure			Inhalation	า				
Exposure Concenti		t)·	None Det					
Number of Sample			33	00004				
Number of Sites:			1					
Worker Activity:			Painting	and degre	easing p	parts at a bus maintenance shop		
Number of Worker	s:		17	0	01			
Type of Sampling:			personal,	area				
Sampling Location	:		Paint, Degreasing, Welding, and soldering rooms.					
Exposure Duration	ı:		Varies					
Exposure Frequence	ey:		Varies					
Engineering Contro	ol & percer	nt Exposure Reduction:	Better ventilation suggested in all operations.					
Analytic Method:			NIOSH M	Iethod S-	329			
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabil	lity							
Domain 1. Itenasi.	Metric 1:	Methodology	High	\times 1	1	NIOSH Method S-329		
D								
Domain 2: Represe		G 1: G	TT: 1	1	1			
	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6 1	1981, 37 years old and prior to most recent PEL		
	Metric 5:	Sample Size	High	× 1	1	discrete samples given		
Domain 3: Accessi	bility/Clar	ity						
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Missing exposure frequency and exposure duration per day but		
-						has other key metadata (sample type and exposure type)		
Continued on next page								

	COII	illueu iroin p	or c v lous	page				
Source Citation:	Love, J. R., Kern, M 1981. Health Washington, DC.	hazard evalua	tion repo	ort no.	HETA-81-065-938,	METRO Bus Maintenance Shop,		
Type of Data Source	Occupational Exposure; Monitoring Da	ata;						
Hero ID	3859376	1 , , , , , , , , , , , , , , , , , , ,						
EVALUATION								
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score		Comments		
Domain 4: Variab	ility and Uncertainty Metric 7: Metadata Completeness	Low	× 1	3	Not discussed.			
	r							
Overall Quality D	${ m etermination}^{\dagger}$	Medium		1.8				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	2017. Pollution prevention search results, envirofacts database. Occupational Exposure; Environmental Release Data; 3860453							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Descrip	otion (Subca	ategory of Use):	Everythir Everythir	0				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	ility							
	Metric 1:	Methodology	High	× 1	1	Envirofacts, US EPA		
Domain 2: Repres	sentative							
Domain 2. Repres	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	\times 2	2	Many workplaces relating to the scope of this occupational scenario		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	Variety of releases documented from 2015 and earlier.		
	Metric 5:	Sample Size	Medium	× 1	2	Variety of release numbers from various companies with details regarding industry and previous year's releases		
Domain 3: Access	ibility/Clar	ity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Maybe a 2. Release data is quantified per year, but has some details about past year and process changes.		
Domain 4. Varial	ility and II-	naartainty						
Domain 4: Variab	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.		
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	High		1.6			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	1994. National emission standards for hazardous air pollutants: Halogenated solvent cleaning – Background information for
	final standards.
<i>U</i> 1	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860538
EXTRACTION	
Parameter	Data

EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Domain 1: Reliability	26 (1 1 1 1	TT . 1.1	-	4	
Metric 1:	Methodology	Unacceptable	× 1	4	No methodology
Domain 2: Representative					
Metric 2:	Geographic Scope	High	$\times 1$	1	US
Metric 3:	Applicability	Unacceptable	\times 2	8	Discussion and Public Comment on 1994 NESHAP Halogenated Solvent Rules
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1994
Metric 5:	Sample Size	Low	$\times 1$	3	no exposure data
Domain 3: Accessibility/Clar	ity				
Metric 6:	Metadata Completeness	Unacceptable	$\times 1$	4	no exposure data
Domain 4: Variability and Ur	ncertainty				
Metric 7:	Metadata Completeness	Low	$\times 1$	3	no exposure data
Overall Quality Determinatio	$ m n^\dagger$	Unacceptable		4	Metric Mean Score: 3.2.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	1994. Chemical summary for methylene chloride (dichloromethane). Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3860545								
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Descript	ion (Subca	ategory of Use):	EPA Chemic	al Summ	ary				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabili	ity Metric 1:	Methodology	High	× 1	1	EPA - though there is a line that states: No attempt has been made to verify information in these databases and secondary sourced.			
Domain 2: Represe	ntative								
•	Metric 2:	Geographic Scope	High	\times 1	1	US			
]	Metric 3:	Applicability	Low	$\times 2$	6	Overview of the DCM, production use, fate, etc.			
]	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1994, 24 years old			
]	Metric 5:	Sample Size	Low	× 1	3	No Comment.			
Domain 3: Accessib	oility/Clari	ity							
]	Metric 6:	Metadata Completeness	Low	$\times 1$	3	No Comment.			
Domain 4: Variabil	ity and Ur	ncertainty							
]	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.			
Overall Quality Det	terminatio	${ m n}^{\dagger}$	Low		2.6				

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Occu	1991. Waste minimization assessment for a manufacturer of outdoor illuminated signs. Occupational Exposure; Monitoring Data; 3860552							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Physical Form:	Subca	stegory of Use):	Use Sign Painting liquid					
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
Domain 1: Reliability Metr	ric 1:	Methodology	High	× 1	1	EPA study		
D : 0 D								
Domain 2: Representati Metr		Geographic Scope	High	× 1	1	US		
Metr		Applicability	Medium	× 1 × 2	4	Workplace that has potential exposure to employees		
Metr		Temporal Representativeness	Low	$\times 2 \times 2$	6	1991, 27 years old and prior to most recent PEL		
Metr		Sample Size	Low	\times 1	3	No Comment.		
D	/01	4						
Domain 3: Accessibility Metr	,	Metadata Completeness	Unacceptable	× 1	4	No sampling was done.		
			*					
Domain 4: Variability a Metr	nd Ur ric 7:	ncertainty Metadata Completeness	Low	× 1	3	No Comment.		
		<u> </u>						
Overall Quality Determ	inatio	\mathbf{n}^{\intercal}	Unacceptable		4	Metric Mean Score: 2.4.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	A 1995. Determination of land nal Exposure; Monitoring Data;	dfill gas co	ompositio	on and p	pollutant emission rates at Fresh Kills Landfill.		
EXTRACTION							
Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subcate Physical Form: Route of Exposure: Exposure Concentration (University Number of Samples: Number of Sites: Worker Activity: Type of Sampling: Sampling Location: Exposure Duration: Exposure Frequency:	Post-use Landfill vapor inhalati ND - 11 100+ 1 None - Area Landfill Constar	on 1.08 ppm landfill					
EVALUATION	EVALUATION						
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
Domain 1: Reliability Metric 1:	Methodology	Low	× 1	3	None Noted		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	× 1	1	US		
Metric 3:	Applicability	Low	$\times 2$	6	Focuses on air quality leaving landfill		
Metric 4:	Temporal Representativeness	Low	\times 2	6	1995, 13 years old and prior to most recent PEL		
Metric 5:	Sample Size	Low	\times 1	3	Limited		
Domain 3: Accessibility/Clar Metric 6:	Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Limited						
Domain 4: Variability and Un Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	Limited		
Overall Quality Determination	n [†]	Low		2.8			
	Continued on next page						

Source Citation: Type of Data Source Hero ID	*	U.S, E. P. A 1995. Determination of landfill gas composition and pollutant emission rates at Fresh Kills Landfill. Occupational Exposure; Monitoring Data; 3970170						
EVALUATION								
Domain	Metric	Rating MWF* Score	Comments					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	ToxNet Hazardous Substances Data, Bank. 2017. HSDB: Methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3970276						
	3910210						
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descrip	tion (Subce	ategory of Use).	All				
Number of Worker		negory or ose).		workers	in USA	1981-1983	
rumber of works	10.		1,100,100	WOILEID	0.011	1001 1000	
EVALUATION							
		24.	D .:	MMMT+	a	C .	
Domain		Metric	Rating	MWF*	Score	Comments	
Domain 1: Reliab	:1:+						
Domain 1. Renabi	Metric 1:	Methodology	High	× 1	1	HSDB (per NOES 1981-1983)	
	Wietife 1.	Wethodology	IIIgii	^ 1	1	113DB (per NOE3 1981-1983)	
Domain 2: Repres	entative						
	Metric 2:	Geographic Scope	High	\times 1	1	US	
	Metric 3:	Applicability	Medium	$\times 2$	4	Total workers in USA	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1981-1983	
	Metric 5:	Sample Size	Low	\times 1	3	no exposure data	
Domain 3: Access	. ,	·					
-	Metric 6:	Metadata Completeness	Low	× 1	3	no exposure data	
D	1 77						
Domain 4: Variab	-		т	1	0		
	Metric 7:	Metadata Completeness	Low	× 1	3	no exposure data	
Overall Quality D	Overall Quality Determination †				2.3		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		t.,Boylstein, R. J 2006. Health embly Plant, Detroit, Michigan.	h hazard ev	valuation	report	no. HETA 2006-0059-3009, DaimlerChrysler Jefferson
Type of Data Source Hero ID	Occupation 3970547	nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Tif C 1 C			T.T.			
Life Cycle Stage: Life Cycle Descrip	otion (Subas	otogowy of Ugo).	Use Automob	ilo oggom	hl.	
Physical Form:	onon (Subca	negory or ose).	vapor	ne assem	DIY	
Route of Exposure	e:		Inhalation	า		
Exposure Concent		t):	0.001 ppn			
Worker Activity:		/-			anual w	velding, welding repair
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1:+					
Domain 1. Kenab	Metric 1:	Methodology	High	× 1	1	NIOSH
		0.22422 0.2208)	6			
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Medium	$\times 2$	4	autmotive assembly
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2006
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Access	sibility/Clar	ity				
Domain 6. Necess	Metric 6:	Metadata Completeness	Medium	× 1	2	instantaneous sample
Domain 4: Variab	-					
-	Metric 7:	Metadata Completeness	Low	× 1	3	no discusion of uncertainty and variability
0		+	3.6.11			
Overall Quality D	eterminatio	n'	Medium		1.8	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ource Citation:	Tubbs, R. Huron, Mi		hazard eva	aluation	report r	no. HETA 93-0608-2423 Unitron Industires, Inc., Po			
ype of Data Source ero ID		nal Exposure; Monitoring Data;							
XTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subca	ategory of Use):	Hearing a	id mold	making				
Physical Form:			liquid, va	•					
Route of Exposure			inhalation						
Exposure Concent		t):	9.76-74.60) ppm					
Number of Sample	es:		4						
Number of Sites:			1						
Type of Measuren	nent or Met	hod:	TWA		, .				
Worker Activity:			Hearing a	ad mold	making				
Number of Workers:			12						
Type of Sampling Sampling Location			personal hearing aid mold making areas						
Exposure Duration			8 hour shift						
Exposure Frequen			daily						
		nt Exposure Reduction:	exhaust fa	ans					
Analytic Method:	or as percer	o zaposaro nodasolom	NIOSH M		003				
VALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	NIOSH Methods 1003,			
Domain 2: Repres	entative								
	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1994, 24 years old and prior to most recent PEL			
	Metric 5:	Sample Size	Medium	× 1	2	Were not provided with each data point			
	ibility/Clor	itv							
Domain 3: Access	mmy/Ciai	ioy							

	COIL	illueu Iroili p	revious	page	
Source Citation:	Tubbs, R. L., Miller, A. K 1994. Hea Huron, Michigan.	alth hazard eva	luation 1	report no	o. HETA 93-0608-2423 Unitron Industires, Inc., Port
Type of Data Source Hero ID	Occupational Exposure; Monitoring Da 3970555	ata;			
nero ID	5970555				
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Domain 4: Variab	ility and Uncertainty				
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality D	etermination [†]	Medium		1.8	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Kiefer, M., Driscoll, R. J 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufaturing Company, Prarie du Chien, Wisconsin.								
Type of Data Source Hero ID		npany, Prarie du Chien, Wisconnal Exposure; Monitoring Data;	sın.						
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subca	ategory of Use):	Loudspea	ker Man	ıfacture				
Exposure Concentr		t):	0-LOD						
Number of Sample	s:		21						
Number of Sites:			1						
Type of Measurem	ent or Met	hod:	TWA						
Worker Activity:			Speaker A	Assembly	, various	S			
	Number of Workers:								
Type of Sampling:			Personal						
Sampling Location:			various						
	Exposure Duration:			workday					
	Exposure Frequency:			ıs					
PPE:			infrequen						
Analytic Method:			NIOSH 1300, 1500, 1005 and/or 1501						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabi	1;+,,								
Domain 1. Renabi	Metric 1:	Methodology	High	\times 1	1	NIOSH 1300, 1500, 1005 and/or 1501			
D D									
Domain 2: Represe		C 1: C	TT: 1	1	1	****			
	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3: Metric 4:	Applicability Temporal Representativeness	High Medium	$\times 2 \times 2$	$\frac{2}{4}$	Workplace that has potential exposure to employees 1998, 20 years old but after most recent PEL			
	Metric 4: Metric 5:	Sample Size	Medium High	× 2 × 1	1	Data is well characterized.			
	menic 9.	Dampie Dize	111g11	^ 1	1	Data is well characterized.			
Domain 3: Accessi	bility/Clar	itv							
Domain 6. Mcccssi	Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata			
			0**			1			
Domain 4: Variabi	lity and Ur	ncertainty							
			tinued on r						

			omemaca mom p		F0-			
Source Citation:	, ,	Kiefer, M., Driscoll, R. J 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufacturing Company, Prarie du Chien, Wisconsin.						
Type of Data Source	Occupation	Occupational Exposure; Monitoring Data;						
Hero ID	3970559							
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
	Metric 7:	Metadata Completeness	Medium	× 1	2	EPA methods used discuss variability and uncetainty.		
Overall Quality I	Determination	n^{\dagger}	High		1.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

McCammon, C 1990. Health hazard evaluation report no.HETA 89-199-2033, Enesco, Inc., Rocky Mountain Analytics Indicatory, Arvada, Colorado.										
Type of Data Source Cocupational Exposure; Monitoring Data; Comments				valuation re	eport no.l	HETA 8	89-199-2033, Enesco, Inc., Rocky Mountain Analytical			
Data			na Exposure, Monitoring Data,							
Parameter										
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Standards Preparation (Laboratory) Physical Form: Route of Exposure: Inhalation S-8-8.5ppm with peak at 4000ppm Number of Samples: 23 breathing zone, 2 area Number of Sites: 1 Type of Measurement or Method: TWA and short term Worker Activity: Standards preparation TWA and short term Worker Activity: Standards preparation TWA and short term Standards preparation Personal, Area Waste Dump, Wash Sink, Sample Storage Refrigerators Sampling Location: Exposure Duration: Exposure Frequency: Exposure Frequency: Engineering Control & percent Exposure Reduction: Exposure Frequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: NOSH Methods POmain 1: Reliability Metric 1: Methodology Metric 2: Geographic Scope Metric 3: Applicability Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size High x 1 1 Us Worker Activity Nore Methods NIOSH Methods NIOSH Methods Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High x 1 1 Data is well characterized.				Data						
Life Cycle Description (Subcategory of Use):										
Physical Form:				Use						
Route of Exposure September Septembe		n (Subca	ategory of Use):	Standard	s Prepara	tion (L	aboratory)			
Exposure Concentration (Unit):				•						
Number of Samples:										
Number of Sites: 1 Type of Measurement or Methods Standards preparation Worker Activity: Standards preparation Type of Sampling: Personal, Area Sampling Location: Standards preparation: Exposure Frequency: Varies Exposure Frequency: Laboratory Hood Farst Engineering Control & percent Exposure Reduction: Laboratory Hood Farst PPE: Analytic Method: NIOSH Methods Domain 1: Reliability Metric 1: Methodology High x 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope High x 1 1 US Metric 2: Applicability High x 2 2 Workplace that has potential exposure to employees Metric 5: Sample Size High x 1 1 Data is well character		ion (Uni	t):							
Type of Measurement or Method: Worker Activity: Standards preparation Type of Sampling: Sampling Location: Exposure Duration: Exposure Prequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: Domain 1: Reliability Domain 2: Representative Metric 2: Metric 2: Metric 3: Metric 4: Metric 4: Temporal Representative Metric 5: Metalata Completeness Metric 4: Metalata Completeness Metric 6: Metalata Completeness Metalata Completeness Missimation Standards preparation Personal, Area Waste Dump, Wash Sink, Sample Storage Refrigerators Sample Storage Refrigerators Sample Storage Refrigerators Name Dump, Wash Sink, Sample Storage Refrigerators Sample Storage Refrigerators Name Dump, Wash Sink, Sample Storage Refrigerators 8 hour shift, Sample Storage Refrigerators 9 hour shift,				23 breath	ing zone,	2 area				
Worker Activity: Type of Sampling: Type of Sampling: Sampling: Sampling Location: Exposure Duration: Exposure Frequency: Exposure Frequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: Domain 1: Reliability Metric 1: Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size High × 1 1 US Metric 4: Temporal Representativeness Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metric				1						
Type of Sampling: Sampling Location: Sampling Location: Exposure Duration: Exposure Frequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: Domain 1: Reliability Metric 1: Metric 2: Metric 3: Metric 4: Metric 4: Metric 4: Metric 5: Sample Storage Refrigerators Shour shirt. Varies NIOSH websolute NIOSH we		t or Met	hod:							
Sampling Location: Exposure Duration: Exposure Frequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: Metric 1: Metric 2: Metric 2: Metric 3: Metric 3: Metric 4: Metric 4: Metric 5: Metric 5: Metric 6: Metric 8: Metric 9: Norwaries NIOSH Metrop Fans NIOSH Metrop Fans NIOSH Metric 8: NIOSH Metric 9: NIOSH Methods NIOSH Methods		· · · · · · · · · · · · · · · · · · ·				tion				
Exposure Duration: Exposure Frequency: Exposure Frequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: NIOSH Methods NIOSH Methods						1 0: 1				
Exposure Frequency: Engineering Control & percent Exposure Reduction: PPE: Analytic Method: NIOSH NIOSH										
Engineering Control & percent Exposure Reduction: PPE: Analytic Method: Metric Sandric Scope High × 1 1 US Metric 2: Geographic Scope Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Data is well characterized.					ııt					
PPE: Analytic Method: Varies NIOSH Methods EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata		0	ot Europeum Doduction.		II.ad	Eoma				
Analytic Method: NIOSH Methods EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata		& percer	it Exposure Reduction:							
EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High × 1 1 US Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Data is well characterized.										
Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata	Analytic Method.			MODII Methods						
Domain 1: Reliability Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata	EVALUATION									
Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata	Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Metric 1: Methodology High × 1 1 NIOSH Methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata	D									
Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata			Mathadalagy	Ui.ch	v 1	1	NIOGII M. d l-			
Metric 2: Geographic Scope Metric 3: Applicability High × 1 High × 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 Complete Metadata	1/10	etric 1.	Wethodology	Iligii	X 1	1	NIOSH Methods			
Metric 2: Geographic Scope Metric 3: Applicability High × 1 High × 2 Workplace that has potential exposure to employees Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 Complete Metadata	Domain 2: Represent	ative								
Metric 4: Temporal Representativeness Low × 2 6 1989, 29 years old and prior to most recent PEL Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata			Geographic Scope	High	$\times 1$	1	US			
Metric 5: Sample Size High × 1 1 Data is well characterized. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata	Me	etric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness High × 1 1 Complete Metadata	Me	etric 4:	Temporal Representativeness	Low	$\times 2$	6	1989, 29 years old and prior to most recent PEL			
Metric 6: Metadata Completeness High \times 1 1 Complete Metadata	Me	etric 5:	Sample Size	High	× 1	1	Data is well characterized.			
Metric 6: Metadata Completeness High \times 1 1 Complete Metadata	D : 0 A :1:11	/01	•							
			=	III: ml-	1	1				
Continued on next page	Me	etric 6:	Metadata Completeness	nigh	× 1	1	Complete Metadata			
			Con	ntinued on	next page	;				

		<u>'</u>	continued from p	revious	page	
Source Citation:		n, C 1990. Health ha y, Arvada, Colorado.	zard evaluation re	port no.	HETA 8	89-199-2033, Enesco, Inc., Rocky Mountain Analytical
Type of Data Source Hero ID	Occupation 3970566	nal Exposure; Monitoring	g Data;			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 4: Varial	v	certainty Metadata Completenes	s Low	× 1	3	Variability and uncertainty not discussed.
Overall Quality I			Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source	Williamsp Occupatio	Burr, G. A.,Richardson, F. D 1988. Health hazard evaluation report no. HETA 87-250-1888, GTE Products Corporation, Williamsport, Pennsylvania. Occupational Exposure; Monitoring Data;						
Hero ID	3970567							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Descrip Physical Form: Route of Exposur Number of Sampl Number of Sites: Number of Worke Analytic Method:	Use SEM Assembly and Testing vapor Inhalation 0, looked at company's previous IH sampling data 1 45 Accepted Industrial Hygiene Procedures							
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	Accepted Industrial Hygiene Procedures		
Domain 2: Repres		G 1. G	***		_			
	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1988, 30 years old and prior to most recent PEL		
	Metric 5:	Sample Size	Low	× 1	3	Only referenced results from a private industrial hygenist, but no specific samples mentioned.		
D	-:1-:1:4/C1	:1						
Domain 3: Access	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	A couple points of data were pulled from private IH dataset, but with no background data.		
Domain 4: Variab		· ·	_					
	Metric 7:	Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.		
Overall Quality D	eterminatio	${f n}^{\dagger}$	Unacceptable		4	Metric Mean Score: 2.4.		
			Yantinual	4				
Continued on next page								

Source Citation:	Burr, G. A.,Richardson, F. D. 1988 Williamsport, Pennsylvania.	8. Health hazard evalua	ation report no. HETA	87-250-1888, GTE Products Corporation,
Type of Data Source Hero ID	Occupational Exposure; Monitoring 3970567	Data;		
EVALUATION				
Domain	Metric	Rating	MWF* Score	Comments

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Hero ID Type of Data Source Hero ID Data EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Number of Samples: Number of Sites: Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Sampling Location: Turn Accuracy Personal, Area Sampling Location: Solvent use Use Use Use Vapor Inhalation conc. below detectable limit TWA Speaker Assembly Personal, Area workers on the assembly line	
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Solvent use Physical Form: Vapor Route of Exposure: Inhalation Exposure Concentration (Unit): Number of Samples: Number of Sites: 1 Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Personal, Area	
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Solvent use Physical Form: Vapor Route of Exposure: Inhalation Exposure Concentration (Unit): Number of Samples: Number of Sites: 1 Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Use Solvent use Vapor Inhalation Conc. below detectable limit Tuh Tuh Tuh Tuh Tuh Tuh Tuh Type of Measurement or Method: The Speaker Assembly The Speaker Assembly Type of Sampling: Personal, Area	
Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Number of Samples: Number of Sites: Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Solvent use Vapor Inhalation conc. below detectable limit 11 Tunumber of Sites: 1 TWA Worker Activity: Speaker Assembly Personal, Area	
Physical Form: Route of Exposure: Inhalation Exposure Concentration (Unit): Number of Samples: Number of Sites: Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Vapor Inhalation Conc. below detectable limit 11 TUA TWA Worker Activity: Speaker Assembly Personal, Area	
Route of Exposure: Exposure Concentration (Unit): Number of Samples: Number of Sites: Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Inhalation conc. below detectable limit 11 TWA TWA PWA Worker Activity: Speaker Assembly Personal, Area	
Exposure Concentration (Unit): Number of Samples: Number of Sites: 1 Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Conc. below detectable limit 11 TWA Speaker Assembly Personal, Area	
Number of Samples:11Number of Sites:1Type of Measurement or Method:TWAWorker Activity:Speaker AssemblyNumber of Workers:6Type of Sampling:Personal, Area	
Number of Sites: Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: 1 TWA Speaker Assembly 6 Type of Sampling: Personal, Area	
Type of Measurement or Method: Worker Activity: Speaker Assembly Number of Workers: Type of Sampling: Personal, Area	
Worker Activity: Speaker Assembly Number of Workers: 6 Type of Sampling: Personal, Area	
Number of Workers: 6 Type of Sampling: Personal, Area	
Type of Sampling: Personal, Area	
Sampling Location workers on the assembly line	
Exposure Duration: 8 hour shift Exposure Frequency: M-F	
Analytic Method: NIOSH Methods	
EVALUATION	
Domain Metric Rating MWF* Score Comments	
Domain 1: Reliability	
Metric 1: Methodology High × 1 1 NIOSH method	
Domain 2: Representative	
Metric 2: Geographic Scope High × 1 1 US	
Metric 3: Applicability High \times 2 Workplace that has potential exposure to en	employees
Metric 4: Temporal Representativeness Medium × 2 4 1997, 21 years old but after most recent PE	
Metric 5: Sample Size High \times 1 1 1 samples taken	
Domain 3: Accessibility/Clarity	
Metric 6: Metadata Completeness Medium × 1 2 Was not documented how long workers v Methylene Chloride.	were working with
Continued on next page	

	Collein	iueu iroin į	71 C V 1 C U I	page				
Source Citation:	Kiefer, M., Driscoll, R. J 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufacturing Company, Prarie du Chien, Wisconsin, Part 2.							
Type of Data Source	Occupational Exposure; Monitoring Data;							
Hero ID	3970568							
EVALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 4: Variab	bility and Uncertainty							
	Metric 7: Metadata Completeness	Medium	× 1	2	Expressed uncertainty regarding conditions at different times of the year. $$			
Overall Quality I	Determination [†]	High		1.4				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ource Citation:	Reh, C. M	.,Lushniak, B. D 1990. Healt	h hazard e	valuation	report	no. HETA 87-350-2084, Trailmobile, Inc., Charleston,				
	Ilinois.	,			1	, , , , ,				
	nal Exposure; Monitoring Data;									
lero ID	3970570									
EXTRACTION			ъ.							
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descripti	on (Subca	ategory of Use):	Polyureth		n Blowi	ing				
Physical Form:			Liquid, va							
Route of Exposure:			Inhalation							
Exposure Concentra		t):	1.3-5.1 pp	om						
Number of Samples	:		5							
Number of Sites:			1							
Worker Activity:			foam oper	rators						
Type of Sampling:			Personal Foaming							
Sampling Location: Exposure Duration:			8 hour shift							
PPE:					half fac	e respirators with organic vapor cartridges				
Analytic Method:			NIOSH M	, ,		ac respirators with organic vapor cartileges				
Timaly ore Treemed.			11100111	1001104 10	,,,,					
VALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliabili	tv									
	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005				
			6							
Domain 2: Represen	ntative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
I	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990, 28 years old and prior to most recent PEL				
	Metric 5:	Sample Size	High	× 1	1	discrete data given				
Domain 3: Accessib	ility/Clar	itv								
Metric 6: Metadata Completeness				× 1	2	Not clear how frequently foaming operation (exposure activity) is being done.				
Domain 4: Variabili	ity and Ur	ncertainty								

			omemaca nom p		F0-				
Source Citation:	Reh, C. M Illinois.	.,Lushniak, B. D 1990.	Health hazard ev	aluation	report 1	no. HETA 87-350-2084, Trailmobile, Inc., Charleston,			
Type of Data Source	Occupation	Occupational Exposure; Monitoring Data;							
Hero ID	3970570	3970570							
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
	Metric 7:	Metadata Completenes	s Medium	× 1	2	Unceratainty addressed in NIOSH Method			
Overall Quality I	Determination	\mathbf{n}^{\dagger}	Medium		1.7				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Bresler, F.,Salisbury, 1993. Hobins, Georgia.	ealth hazard eva	aluation	report 1	no. HETA 92-0101-2341, Robins Air Force Base,				
Type of Data Source Hero ID	Occupation 3970572	Occupational Exposure; Monitoring Data; 3970572								
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Descrip Number of Sites:	ategory of Use):	Use Degreasing and 1	d Metal (Cleaning	g for Aircraft					
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ility									
	Metric 1:	Methodology	Unacceptable	\times 1	4	Does not test for Methylene Chloride				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	Methylene Chloride not referenced.				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old and prior to most recent PEL				
	Metric 5:	Sample Size	Low	\times 1	3	No Comment.				
Domain 3: Access	ibility/Clari	itv								
		Metadata Completeness	Unacceptable	× 1	4	No Comment.				
Domain 4: Variab	ility and Ur	ocertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.				
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Unacceptable		4	Metric Mean Score: 3.2.				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Harney, J. M., Hess, J., Reh, C. M., Trout, D 2002. Health hazard evaluation report no. HETA 2000-0410-2891, STN Cusion company, Thomasville, North Carolina.								
Type of Data Source Hero ID	Occupation 3970574	Occupational Exposure; Monitoring Data; 3970574								
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Descrip Number of Sites:	otion (Subca	ategory of Use):	Use Sofa Cushions 1							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ilitz									
	Metric 1:	Methodology	Unacceptable	× 1	4	Does not test for Methylene Chloride				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	Methylene Chloride not referenced.				
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2002, 16 years old				
	Metric 5:	Sample Size	Low	\times 1	3	No Comment.				
Domain 3: Access	sibility/Clari	itv								
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No Comment.				
Domain 4: Variab	sility and Ur	ncertainty								
Domain 4. Variati	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.				
Overall Quality D	eterminatio	${ m n}^{\dagger}$	Unacceptable		4	Metric Mean Score: 3.0.				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source C	988, Ame	L.,McManus, K. P.,Kaiser, E. A. rican cyanamid, Wallingford, Conal Exposure; Monitoring Data;		Fidler A.	T 198	89. Health hazard evaluation report no. HETA 87-075-				
EXTRACTION										
Parameter	Parameter									
Life Cycle Stage:			Use							
	Life Cycle Description (Subcategory of Use):			rrier (5 p	ercent b	by volume), used on graphite fibers				
Physical Form:			Vapor							
Route of Exposure:										
Exposure Concentra	Air Conc	entration	from 13	3.9-74.4 mg/m3. Respirators were used so does						
	Number of Samples:				ker expo	sure				
					$8~{\rm area}$					
Number of Sites:	1									
Type of Measuremen	8 hr TWA									
	Worker Activity:			Accessing mixing booth and sizing tanks that contain methylene chloride						
Number of Workers:			56 participated in study, 19 currently exposed, 6 previously exposed. Personal, Area 8 locations around process unit Various							
Type of Sampling:										
Sampling Location:										
Exposure Duration:										
Exposure Frequency			Not on daily basis, but as needed for special orders							
	& percen	t Exposure Reduction:	Air Supplied Respirators							
PPE:			Hard Hat, Glasses, Safety Shoes, Air Supplied Respirators, Gloves, Disposable Coveralls, and Aprons							
Analytic Method:			posable (NIOSH 1		and Ap	rons				
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliabilit	tv									
	Metric 1:	Methodology	High	× 1	1	NIOSH 1003				
Domain 9. Dannagan	.t.ati									
Domain 2: Represen		Geographic Scope	High	× 1	1	US				
	Metric 2: Geographic Scope Metric 3: Applicability			\times 1 \times 2	2	metal coated fibers				
	Metric 3:	Temporal Representativeness	High Low	× 2 × 2	6	1989, 28 years old and prior to most recent PEL				
17	±0W			1000, 20 Jeans old and prior to most recent i Ell						

Source Citation:	,	Bicknell, R.,McManus, K. P.,Kaiser, E. A.,Konig, J. Fidler A. T 1989. Health hazard evaluation report no. HETA 87-075-1988, American cyanamid, Wallingford, Connecticut.							
Type of Data Source Hero ID	Occupation 3970576	Occupational Exposure; Monitoring Data; 3970576							
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
	Metric 5:	Sample Size	High	× 1	1	Sampling was done from a variety of places and workers, but only on one occasion.			
Domain 3: Access	sibility/Clar	itv							
	Metric 6:	Metadata Completeness	Medium	× 1	2	all methods and equipment used are described and seem legitimate			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.			
Overall Quality Determination †		Medium		1.8					

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Ahrenho	olz, S. H 1980. Health hazar	d evaluation	on repor	t no.	HHE 80-18-691, Looart Press Incorporate, Colorado			
	Colorado.							
Type of Data Source Occupat Hero ID 3970580	tional Exposure; Monitoring Data;							
	'							
EXTRACTION		ъ.						
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Sul	bcategory of Use):	Printing	Plate Cle	aning				
Physical Form:		Vapor						
Route of Exposure:		Inhalatio						
Exposure Concentration (U	Jnit):	$17 \text{mg/M}_{\odot}^{2}$	3					
Number of Samples:		2						
Number of Sites:		1						
Type of Measurement or M	Iethod:	TWA						
Worker Activity:	O	the step	and rep	peat machine				
Number of Workers:	4							
Type of Sampling:	Personal			1 1:				
Sampling Location:			sing the	step an	nd repeat machine			
Exposure Duration:		Unkown						
Exposure Frequency: Analytic Method:		once/day	00-CANT	197				
Analytic Method.		NIOSH P&CAM 127						
EVALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Metric 1	1: Methodology	High	\times 1	1	NIOSH P&CAM 127			
Domain 2: Representative		TT: 1						
Metric 2	0 1	High	× 1	1	data from US			
Metric 3		High	× 2	2	Workplace that has potential exposure to employees			
Metric 4 Metric 5	1 1	Low	$\times 2 \times 1$	6	1980, 37 years old, and prior to most recent PEL			
Metric (o: Sample Size	High	× 1	1	discrete data given			
Domain 3: Accessibility/C	larity							
Metric (Metric 6: Metadata Completeness			2	Most metadata given, missing exposure frequency and duratio			
	Cor	ntinued on a	next page	e				

			ominaca nom p	1011046	Page				
Source Citation:	Ahrenholz, S. H Springs, Colorado.	1980. Health	hazard evaluatio	n report	no.	HHE 80-18-69	1, Looart Press I	ncorporate,	Colorado
Type of Data Source	Occupational Expos	Occupational Exposure; Monitoring Data;							
Hero ID	3970580								
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score		Comments	;	
Domain 4: Variab	oility and Uncertainty Metric 7: Metadat		${ m Medium}$	× 1	2	Uncertainty ad	dressed in NIOSH Me	othod	
	Wictite 7. Wictadan	ta Completeness	Wedium	× 1		Cheertainty au	dressed iii N1O511 Me	thod	
Overall Quality D	${ m etermination}^{\dagger}$		Medium		1.7				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		t no. HETA 90-172-2076, Bussman/Cooper Industries,							
Гуре of Data Source Hero ID		abethtown, Kentucky. nal Exposure; Monitoring Data;							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Print Rol		ing				
Physical Form:			Liquid/Va						
Route of Exposure			Inhalation						
Exposure Concent		t):	4.02 - 4.24	mg/m3					
Number of Sample	es:		2						
Number of Sites:			1	4 D II					
Worker Activity: Number of Worker		Clean Pri 226	nt Roller	S					
Type of Sampling	Area								
Sampling Location:			Blister Pack Machine						
Exposure Duration			8 hrs	ick Macii	me				
Exposure Frequen			varies						
Analytic Method:			NIOSH Method 1500						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1500 (on review, it seems this method is not currently used for Methylene Chloride).			
Domain 2: Repres	entative								
zomam z. Ropros	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Workplace that has potential exposure to employees			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990, 28 years old and prior to most recent PEL			
	Metric 5:	Sample Size	High	× 1	1	discrete data given			
Domain 3: Access	ibility/Clari	ity							
	Metric 6:	Metadata Completeness	Medium	$\times 1$	2	Unclear how frequently workers are performing part cleaning activities			

		aca mom p		F0-				
Source Citation:	Sussell, A. L., Lushniak, B. D 1990. Health hazard evaluation report no. HETA 90-172-2076, Bussman/Cooper Industries, MPH, Elizabethtown, Kentucky.							
Type of Data Source	Occupational Exposure; Monitoring Data;							
Hero ID	3970589							
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Domain 4: Variab	oility and Uncertainty							
	Metric 7: Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.			
Overall Quality D	Oetermination [†]	Medium		1.8				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Co	ollegeville	e, Pennsylvania.	l. Health h	azard ev	aluatior	n report no. HHE 80-49-808, Superior Tube Company,			
EXTRACTION Parameter		Data							
Life Cycle Stage:	(0.1		Use						
Life Cycle Description	n (Subca	tegory of Use):	Vapor De						
Physical Form:			Liquid, va Inhalation						
Route of Exposure: Exposure Concentrate	ion (Unit	-).	undetecta		mæ/Mĝ				
Number of Samples:	ion (Onic		6 breathin						
Number of Sites:			1	16 20110,	i area s	our pro			
Type of Measurement	t or Meth	nod:	8-hour TV	WA and	short te	rm			
Worker Activity:			operators						
Type of Sampling:			Personal,						
Sampling Location:			Hot and cold degreasers						
Exposure Duration:			Assumed 8 hour shift						
Exposure Frequency:	lr norcon	t Exposure Reduction:	varies	now wont	ilation (gygtam			
Analytic Method:	œ percen	t Exposure reduction.	Suggests new ventilation system. NIOSH P & CAM 127						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability	7								
Me	etric 1:	Methodology	High	× 1	1	NIOSH Method P & CAM 127			
Domain 2: Represent	ative								
_	etric 2:	Geographic Scope	High	\times 1	1	US			
Me	etric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
	Metric 4: Temporal Representativeness			\times 2	6	1980, 38 years old and prior to most recent PEL			
Me	etric 5:	Sample Size	High	× 1	1	discrete data given			
Domain 3: Accessibili	ity/Clari	ty							
	Metric 6: Metadata Completeness			× 1	2	Unclear how frequently workers are performing degreasing activities			
	-	Con	tinued on r	next page	;				

		, , , , , , , , , , , , , , , , , , , ,			
Source Citation:	Ruhe, R. L., Watanabe, A., Stein, G. 198 Collegeville, Pennsylvania.	31. Health h	azard ev	aluation	n report no. HHE 80-49-808, Superior Tube Company,
Type of Data Source	Occupational Exposure; Monitoring Data	;			
Hero ID	3970617				
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Domain 4: Variab	oility and Uncertainty Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality D	Determination [†]	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		t, R., Polakoff, P. L 1973. Heal Connecticut, Part 2.	th hazard	evaluatio	n report	t no. HHE 72-84-31, Dunham-Bush, Incroprated, West			
Type of Data Source Hero ID	Occupational Exposure; Monitoring Data; 3970657								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subca	ategory of Use):	Spray Pa	inting					
Physical Form:			aerosol						
Route of Exposure			inhalatio						
Exposure Concent		t):	1-74 mg/	m3					
Number of Sample	es:		Area: 15	Personal:	28				
	Number of Sites:								
Worker Activity:			Spray pa		spray b	ooths			
Type of Sampling:			personal,						
Sampling Location	Sampling Location:				spray booth				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	Method described and NIOSH HHE; therefore, assumed to be a NIOSH method $$			
Domain 2: Repres	entative								
1	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1977, 41 years old and prior to most recent PEL			
	Metric 5:	Sample Size	High	× 1	1	discrete data given			
Domain 3: Access	ibilitv/Clar	itv							
	٠,	Metadata Completeness	High	\times 1	1	Complete Metadata			
	Metric 6:	течаска сопристене							
Domain 4: Variab		-							
Domain 4: Variab		-	Low	× 1	3	No uncertainty addressed			
	ility and Un Metric 7:	ncertainty Metadata Completeness	Low	× 1		No uncertainty addressed			
Domain 4: Variab Overall Quality D	ility and Un Metric 7:	ncertainty Metadata Completeness n [†]			1.7	No uncertainty addressed			

Source Citation:	Vandervort, R., Polakoff, P. L. 1973. Hartford, Connecticut, Part 2.	. Health hazard	evaluation	report no. HHl	E 72-84-31, Dunham-Bush, Incroprated, Wes
Type of Data Source	Occupational Exposure; Monitoring	Data;			
Hero ID	3970657				
EVALUATION					
Domain	Metric	Rating	MWF^*	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Vandervort, R., Polakoff, P. L.: 1973. Health hazard evaluation report no. HHE 72-84-31, Dunham-Bush, Incroprated, West Hartford, Connecticut, Part 2.							
Type of Data Source Hero ID	,	nal Exposure; Monitoring Data;						
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	tion (Subc	ategory of Use):	Spray Pa	inting				
Physical Form:		,	aerosol	0				
Route of Exposure	e:		inhalation	n				
Exposure Concent		it):	1-74 mg/s	m3				
Number of Sample	es:		Area: 15I	Personal:	28			
Number of Sites:								
Worker Activity:			Spray pai					
	Type of Sampling:			area				
Sampling Location	n:		spray boo	oth				
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliab	:1;+x-							
Domain 1. Renau.	Metric 1:	Methodology	High	× 1	1	Method described and NIOSH HHE; therefore, assumed to be a NIOSH method		
Domain 2: Repres	sentative							
Bolliam 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1977, 41 years old and prior to most recent PEL		
	Metric 5:	Sample Size	High	\times 1	1	discrete data given		
Domain 3: Access	:h:l:+/Closs	:						
Domain 5: Access	Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata		
	Metric 0.	Metadata Completeness	IIIgii	× 1	1	Complete Metadata		
Domain 4: Variab	ility and U	ncertainty						
Domain i. variab	-		Low	$\times 1$	3	None addressing data		
	Metric 7:	Metadata Completeness	1011					
Oronall Ovality D		-			1 7			
Overall Quality D		n [†]	Medium		1.7			

Source Citation:	Vandervort, R., Polakoff, P. L. 1973. Hartford, Connecticut, Part 2.	Health hazard	evaluation	n report no. HH	IE 72-84-31, Dunham-Bush, Incroprated, Wes
Type of Data Source Hero ID	Occupational Exposure; Monitoring l 3970657	Oata;			
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		7. Uses at industrial sites: Dichnal Exposure; Monitoring Data;	loromethane.			
EXTRACTION Parameter			Data			
Life Cycle Stage: Physical Form: Route of Exposur Worker Activity:	e:		Manufacture, U Varies Varies Varies	Use, and	Exposu	re Review
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility Metric 1:	Methodology	Unacceptable	× 1	4	No Comment.
Domain 2: Repres	contativo					
Domain 2. Repres	Metric 2:	Geographic Scope	Medium	× 1	2	European Chemicals Agency
	Metric 3:	Applicability	Unacceptable	× 2	8	Synopsis of where the chemical is used, not an occupational scenario
	Metric 4:	Temporal Representativeness	Low	\times 2	6	No Comment.
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Access	sibility/Clari	itv				
	Metric 6:	Metadata Completeness	${\bf Unacceptable}$	\times 1	4	No Comment.
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality D	etermination	n^{\dagger}	Unacceptable		4	Metric Mean Score: 3.3.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		7. Uses by professional workers: nal Exposure; Monitoring Data;	Dichloromethan	ne.		
EXTRACTION Parameter			Data			
Life Cycle Stage: Physical Form: Route of Exposur Worker Activity:	e:		Manufacture, Varies Varies Varies	Use, and	Exposu	re Review
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility Metric 1:	Methodology	Unacceptable	× 1	4	No Comment.
Domain 2: Repres	contativo					
Domain 2. Repres	Metric 2:	Geographic Scope	Medium	× 1	2	European Chemicals Agency
	Metric 3:	Applicability	Unacceptable	× 2	8	Synopsis of where the chemical is used, not an occupational scenario
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	No Comment.
-	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Access	sibility/Clari Metric 6:	ity Metadata Completeness	Unacceptable	× 1	4	No Comment.
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality D	eterminatio	n [†]	Unacceptable		4	Metric Mean Score: 3.3.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		78. Occupational health guideling				
Type of Data Source		nal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;
Hero ID	3974864					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Health G	uidline		
Physical Form:		, , ,	liquid, va	por		
Route of Exposur	e:		inhalation	n, dermal	, ingest	ion
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	High	× 1	1	OSHA
Domain 2: Repres	sentative					
Bollion 2. Idopros	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Low	\times 2	6	Occupational Health Guidline for Methylene Chloride in the workplace.
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1978, 40 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 2. Access	.:la:l:4/Clam					
Domain 3: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	Well documented, but little to no citations inline with the text.
-						
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	N/a
Overall Quality D	eterminatio	${f n}^\dagger$	Low		2.4	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	80. Extent of exposure survey o nal Exposure; Monitoring Data;	f methylene	chloride						
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Use							
Life Cycle Description (Subcategory of Use):		Paint Stri	ipping						
Physical Form:		liquid, va							
Route of Exposure:			1						
Exposure Concentration (Unit):			15.7 - 26	68 ppm	(avg. conc. 64 ppm)				
Number of Samples:	,	Personal:			, ,				
Number of Sites:		1							
Type of Measurement or Met	hod:	8 Hour T	WA						
Worker Activity:		Stripping	paint						
Number of Workers:									
Type of Sampling:									
Sampling Location:	around aircraft								
Exposure Duration:		$8 \ hr/day$							
Exposure Frequency:			everyday						
Engineering Control & percen	nt Exposure Reduction:	Better ventilation in new facility Coveralls, monogoggles, rubber gloves, etc.							
PPE:									
Analytic Method:		NIOSH S	239						
EVALUATION									
Domain	Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliability									
Metric 1:	Methodology	High	× 1	1	NIOSH Method				
Domain 2: Representative									
Metric 2:	Geographic Scope	High	$\times 1$	1	US				
Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1980, 38 years old and prior to most recent PEL				
Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points				
Domain 3: Accessibility/Clar	itv								
Metric 6:	Metadata Completeness	Medium	× 1	2	Durations of shifts/exposure were not completely captured				
	Cor	tinued on r	next page)					

Source Citation: Type of Data Source Hero ID	Niosh,. 1980. Extent of exposure survey Occupational Exposure; Monitoring Dat 3974901		e chloride.		
EVALUATION					-
Domain	Metric	Rating	MWF^*	Score	Comments
Domain 4: Variab	oility and Uncertainty Metric 7: Metadata Completeness	High	× 1	1	Variability is addressed within the experiment in regards to some of the sampling. Variability and uncertainty is further addressed by the NIOSH method.
Overall Quality I	Determination [†]	High		1.6	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	80. Extent of exposure survey onal Exposure; Monitoring Data;	f methylene	chloride					
EXTRACTION Parameter		Data						
Life Cycle Stage:		Manufact						
Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure:			e fiber pr	oductio	on			
			por					
			1					
	Exposure Concentration (Unit):			_	a: 409-950ppm			
Number of Samples:		Personal:	46Area:	16				
Number of Sites:	1							
Type of Measurement or Met	8 Hour T							
Worker Activity:					tly or through residue left on textile.			
Number of Workers:	`	potentia	ally exp	osed to Methylene Chloride)				
Type of Sampling: Sampling Location:		personal Production, Extrusion, Bobbin Stores, and Textile work area						
Exposure Frequency:		variable Ventilation, negative pressure areas						
Engineering Control & percer	it Exposure Reduction:							
PPE:		Varies from none to occasional use of gloves, aprons, goggles, etc. NIOSH S239						
Analytic Method:		MOSH S	239					
EVALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Metric 1:	Methodology	High	× 1	1	NIOSH Method			
Domain 2: Representative								
Metric 2:	Geographic Scope	High	$\times 1$	1	US			
Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Workplace that has potential exposure to employees			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1980, 38 years old and prior to most recent PEL			
Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points			
Domain 3: Accessibility/Clar	ity							
Metric 6:	Metadata Completeness	Medium	× 1	2	Durations of shifts/exposure were not completely captured			
	Con	tinued on 1	next page)				

Source Citation: Type of Data Source Hero ID	Niosh,. 1980. Extent of exposure survey Occupational Exposure; Monitoring Dat 3974901		e chloride.		
EVALUATION					-
Domain	Metric	Rating	MWF^*	Score	Comments
Domain 4: Variab	oility and Uncertainty Metric 7: Metadata Completeness	High	× 1	1	Variability is addressed within the experiment in regards to some of the sampling. Variability and uncertainty is further addressed by the NIOSH method.
Overall Quality I	Determination [†]	High		1.6	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Niosh,. 19 Type of Data Source Occupatio Hero ID 3974901	f methylene	chloride			
EXTRACTION Parameter		Data			
Life Cycle Stage: Life Cycle Description (Subcate Physical Form: Route of Exposure: Exposure Concentration (University Number of Samples: Number of Sites: Type of Measurement or Met Worker Activity: Number of Workers: Type of Sampling: Sampling Location: Exposure Duration: Exposure Frequency: PPE: Analytic Method:	Use Decaffenation of Coffee liquid, vapor inhalation Personal: 0.3-33.2 ppm (avg. conc. 2.9 ppm)Area: 0.05 - 2.08 ppm Personal: 36Short Term: 3Area: 7 1 8 hour, short term, peak Running the decaffeinating facility 55-58 personal, area decaffeinating facility variable up to 8hr/day everyday Company supplied work clothing, safety glasses, hard hats, etc. NIOSH S239				
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2:	Methodology Geographic Scope	High High	× 1	1	NIOSH Method US
Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size			$\begin{array}{c} \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	2 6 1	Workplace that has potential exposure to employees 1980, 38 years old and prior to most recent PEL Excellent charcterization of all measurements and data points
Domain 3: Accessibility/Clar Metric 6:	ity Metadata Completeness	Medium	× 1	2	Durations of shifts/exposure were not completely captured
	Cor	ntinued on 1	next page	9	

Source Citation: Type of Data Source Hero ID	Niosh,. 1980. Extent of exposure survey of methylene chloride. Occupational Exposure; Monitoring Data; 3974901						
EVALUATION Domain	Metric	Doting	MWF*	Caana	Comments		
Domain	Metric	Rating	IVI VV F	Score	Comments		
Domain 4: Variak	oility and Uncertainty Metric 7: Metadata Completeness	High	× 1	1	Variability is addressed within the experiment in regards to some of the sampling. Variability and uncertainty is further addressed by the NIOSH method.		
Overall Quality Determination [†]		High		1.6			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	90. Preliminary survey report: C nal Exposure; Monitoring Data;	Control of	methyle	ne chlori	ide in furniture stripping at Strip-Ease Co. Of Cincinnati.
EXTRACTION Parameter		Data			
Life Cycle Stage: Life Cycle Description (Subcate Physical Form: Route of Exposure: Exposure Concentration (University of Samples: Number of Sites: Worker Activity: Number of Workers: Type of Sampling:	/	liquid, v inhalati 200-150 6 1	on		
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability Metric 1:	Methodology	Low	× 1	3	NIOSH survey, but had limited qualitative sampling available.
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	US Workplace that uses Methylene Chloride 1990, 28 years old and prior to most recent PEL Poorly characterized
Domain 3: Accessibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	Missing sample durations and other metadata
Domain 4: Variability and U. Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination	$^{-}$ on †	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	974904					
		nal Exposure; Monitoring Data;				
Parameter						
			Data			
Life Cycle Stage: Life Cycle Description Physical Form: Route of Exposure: Exposure Concentrate Number of Samples: Number of Sites: Type of Measurement Worker Activity: Type of Sampling: Analytic Method:	tion (Unit	t):	Use Furniture liquid, vap inhalation 11-1052 p 13 persons 1 TWA Stripping personal, NIOSH M	por pmTWA al, 9 area furniture area	: 38 - 49 a	96 ppm
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability	y Ietric 1:	Methodology	High	× 1	1	NIOSH Method 1005
M M	tative fetric 2: fetric 3: fetric 4: fetric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Medium Medium	× 1 × 2 × 2 × 1	1 2 4 2	US Workplace that uses Methylene Chloride 2004, 14 years old Reasonably well characterized.
Domain 3: Accessibi	llity/Clari Ietric 6:	ty Metadata Completeness	Medium	× 1	2	Has baseline metadata
Domain 4: Variabilit M	ty and Un Ietric 7:	certainty Metadata Completeness	High	× 1	1	Discussion addresses some of the limitations and variability in the test. NIOSH method also contains this discussion.

		omaca mom p	orerious page	
Source Citation:	Niosh,. 2004. In-depth survey reports fomulations at The Strip Joint, Inc.	: Assisting furr	niture strippers in redu	cing the risk from methylene chloride stripping
Type of Data Source	Occupational Exposure; Monitoring Da	ata:		
Hero ID	3974904	,		
EVALUATION				
Domain	Metric	Rating	MWF* Score	Comments
Overall Quality I	Determination [†]	High	1.4	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	85. Health hazard evaluation reparal Exposure; Monitoring Data;	port no. Hl	ETA-84-2	14-1633	, Sheldahl, Inc., Northfield, Minnesota.			
ero ID 3974905								
XTRACTION								
Parameter			Data					
Tife Cools Channel		TT						
Life Cycle Stage: Life Cycle Description (Subc	otomore of Han).	Use	dhaaissaa i	Floreil	ole circuit board Mfg			
Physical Form:	ategory of Use):	Liquid, v		птехп	ole circuit board Mig			
Route of Exposure:		Inhalation						
Exposure Concentration (Unit	it):				erm 112-1752 ppm			
Number of Samples:	10).	14	102ppiii,	311010 00	IIII 112-1102 ppiii			
Number of Sites:		1						
Type of Measurement or Met	thod:	8-hour T	WA. shor	t term				
Worker Activity:	, , , , , , , , , , , , , , , , , , ,		on of flex		enitry			
Number of Workers:		650						
Type of Sampling:		Personal,	Area					
Sampling Location:		Laminator, Adhesive Mixer, Tape Machine,						
Exposure Duration:			8-hour shift					
Exposure Duration:	Exposure Duration: Engineering Control & percent Exposure Reduction:							
	nt Exposure Reduction:			lation a	at several processes			
	nt Exposure Reduction:	local exh	aust venti		at several processes air purifying respirators and neoprene gloves			
Engineering Control & percen	nt Exposure Reduction:	local exh	aust venti asses.Inad					
Engineering Control & percen	nt Exposure Reduction:	local exha Safey Gla	aust venti asses.Inad is tasks.	lequate				
Engineering Control & perceippe:	nt Exposure Reduction:	local exha Safey Gla for variou	aust venti asses.Inad is tasks.	lequate				
Engineering Control & percer PPE: Analytic Method:	nt Exposure Reduction: Metric	local exha Safey Gla for variou	aust venti asses.Inad is tasks.	lequate 127				
Engineering Control & percer PPE: Analytic Method: VALUATION Domain		local exhi Safey Gla for variou NIOSH F	aust venti asses.Inad is tasks. P & CAM	lequate 127	air purifying respirators and neoprene gloves			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability	Metric	local exhi Safey Gla for variou NIOSH F	aust venti asses.Inad is tasks. P & CAM	lequate 127	air purifying respirators and neoprene gloves Comments			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain		local exhi Safey Gla for variou NIOSH F	aust venti asses.Inad is tasks. ? & CAM MWF*	127 Score	air purifying respirators and neoprene gloves			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability	Metric	local exhi Safey Gla for variou NIOSH F	aust venti asses.Inad is tasks. ? & CAM MWF*	127 Score	air purifying respirators and neoprene gloves Comments			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability Metric 1:	Metric	local exhi Safey Gla for variou NIOSH F	aust venti asses.Inad is tasks. ? & CAM MWF*	127 Score	air purifying respirators and neoprene gloves Comments			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative	Metric Methodology Geographic Scope Applicability	local exhi Safey Gla for variou NIOSH F Rating	aust venti asses.Inad is tasks. ? & CAM MWF* × 1	127 Score	air purifying respirators and neoprene gloves Comments NIOSH Method P & CAM 127			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2:	Metric Methodology Geographic Scope Applicability Temporal Representativeness	local exhi Safey Gla for variou NIOSH F Rating	aust venti asses.Inad is tasks. ? & CAM MWF* × 1	127 Score 1	Comments NIOSH Method P & CAM 127			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3:	Metric Methodology Geographic Scope Applicability	local exhi Safey Gla for variou NIOSH F Rating High High	aust venti asses.Inad is tasks. ? & CAM MWF* × 1	Score 1 1 2	Comments NIOSH Method P & CAM 127 US Workplace that has potential exposure to employees			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Metric Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	local exhi Safey Gla for variou NIOSH F Rating High High High Low	aust venti asses.Inad is tasks. ? & CAM MWF* × 1 × 1 × 2 × 2	127 Score 1 1 2 6	Comments Comments NIOSH Method P & CAM 127 US Workplace that has potential exposure to employees 1985, 33 years old and prior to most recent PEL			
Engineering Control & percer PPE: Analytic Method: VALUATION Domain Domain 1: Reliability Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4:	Metric Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	local exhi Safey Gla for variou NIOSH F Rating High High High Low	aust venti asses.Inad is tasks. ? & CAM MWF* × 1 × 1 × 2 × 2	127 Score 1 1 2 6	Comments Comments NIOSH Method P & CAM 127 US Workplace that has potential exposure to employees 1985, 33 years old and prior to most recent PEL			

	continued from provious page							
Source Citation: Type of Data Source Hero ID	,	Niosh,. 1985. Health hazard evaluation report no. HETA-84-214-1633, Sheldahl, Inc., Northfield, Minnesota. Occupational Exposure; Monitoring Data; 3974905						
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
Domain 4: Variab	· ·	rtainty 1 detadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method		
Overall Quality D	Θ etermination †		High		1.6			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Sur	Wages, R. obert, Markowitz, S. teven, Kieding, S. ylvia, Griffon, M. ark, Ellenbecker, M. ichael. 1998. Former worker medical surveillance program at Idaho National Engineering and Environmental Laboratory (INEEL) Phase I: Needs assessment. Occupational Exposure; Completed Exposure or Risk Assessments; 3974967						
EXTRACTION	14301						
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Description	(Subca	togory of Uso).	Laboratory and	d Rosoar	ch Facil	ity	
Worker Activity:	i (Bubca	tegory or ose).	Parts degreasing			16 y	
Number of Workers:			11	ig, paint	g,		
Type of Sampling:			General Survy	of past e	emplove	es	
Type of Samping.			delierar zar vy	or past c	inpioj c		
EVALUATION							
Domain		Metric	Rating	MWF*	Score	Comments	
Domain 1: Reliability							
· ·	etric 1:	Methodology	High	× 1	1	DOE contractor	
Domain 2: Representa	ativo						
-	etric 2:	Geographic Scope	High	× 1	1	US	
	etric 3:	Applicability	Unacceptable	× 2	8	Retroactive look at a workplace scenario	
	etric 4:	Temporal Representativeness	Low	$\times 2$	6	1998, but uses survey data	
Me	etric 5:	Sample Size	Low	\times 1	3	No Comment.	
Domain 3: Accessibility	. ,		**	_			
Me	etric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.	
Domain 4: Variability	and Un	certainty					
· ·	etric 7:	Metadata Completeness	Low	\times 1	3	No Comment.	
		T. C. C.					
Overall Quality Deter	mination	n^{\dagger}	Unacceptable		4	Metric Mean Score: 2.9.	
2 . 2 . 3 . 4 . 4 . 4 . 5 . 5 . 6 . 6 . 6 . 6 . 6 . 6 . 6 . 6			5 P 00010		-		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Doe,. 200 diffusion p		dical screening of	of constru	uction v	workers at the Portsmouth and Paducah gaseous		
Type of Data Source Hero ID	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3974976							
EXTRACTION			_					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	otion (Subca	ategory of Use):	Gaseous Diffus	ion Plan	t Const	ruction		
Number of Sites:			2					
Worker Activity:			Degreasing					
Number of Worke	rs:		>1000					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliab	ility							
	Metric 1:	Methodology	High	× 1	1	University of Cincinnati, NIOSH, DOE		
Domain 2: Repres	sentative							
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	Retroactive look at a workplace scenario		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	2003, but uses old data		
	Metric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Access	ibility/Clar	ity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Well documented, but little to no citations inline with the text.		
Domain 4: Variab	ility and Ur	ncertainty						
		Metadata Completeness	Low	\times 1	3	No Comment.		
Overall Quality D	eterminatio	${f n}^{\dagger}$	Unacceptable		4	Metric Mean Score: 2.7.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Doe,. 1999. Advanced mixed waste treatment project: Appendices. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3974977							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Disposal					
Life Cycle Descrip Physical Form:	tion (Subca	ategory of Use):	Waste Incinera Vapor	ition				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabi	lity							
	Metric 1:	Methodology	Medium	× 1	2	Contractor for DOE		
Domain 2: Represe	entative							
	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	Unacceptable	\times 2	8	Estimations for future incineration emissions - not related to direct worker exposure. $$		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1999, 19 years old		
	Metric 5:	Sample Size	Low	× 1	3	No Comment.		
Domain 3: Accessi	bility/Clari	ity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Not well documented.		
Domain 4: Variabi	lity and Ur	ncertainty						
		Metadata Completeness	Low	× 1	3	No Comment.		
Overall Quality De	eterminatio	$ m n^{\dagger}$	Unacceptable		4	Metric Mean Score: 2.9.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Doe,. 1992. Summary of clean up site at Glass Melter thermal Treatment Unit at Monsanto Research Corporation. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3974994						
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Sub- Physical Form: Number of Sites: Engineering Control & perc	Disposal Waste Incineration Vapor 1 Controls to prevent inefficient waste burning						
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1	: Methodology	High	× 1	1	DOE, EPA, DOI		
Domain 2: Representative							
Metric 2	: Geographic Scope	High	$\times 1$	1	US		
Metric 3	: Applicability	Unacceptable	$\times 2$	8	Synopsis of a scenario where methylene chloride could be introduced in the workplace, but focused solely on efficiency of the incinerator		
Metric 4	: Temporal Representativeness	Low	$\times 2$	6	1988, 30 years old		
Metric 5	: Sample Size	Low	\times 1	3	No Comment.		
Domain 3: Accessibility/Cl	arity						
	: Metadata Completeness	High	\times 1	1	Well documented		
Domain 4: Variability and	Uncertainty						
Metric 7	· ·	Low	× 1	3	None addressing data		
Overall Quality Determinat	ion [†]	Unacceptable		4	Metric Mean Score: 2.6.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source O	Osha,,Niosh,. 2013. Hazard alert methylene chloride hazards for bathtub refinishers. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3978131							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Worker Activity: Engineering Control & percent Exposure Reduction: PPE:			Use Bathtub Refinishing/Stripping Liquid, Vapor Inahaltion, Dermal Bathtub refinishing Test the air, provide local exhaust ventilation Full face respirator, PE or EVOH gloves, DCM resistant clothing, goggles					
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability	• • • • • • • • • • • • • • • • • • • •		3					
	letric 1:	Methodology	Unacceptable	× 1	4	No methodology		
Domain 2: Represent	tative							
=	letric 2:	Geographic Scope	High	× 1	1	US		
M	letric 3:	Applicability	Unacceptable	\times 2	8	NIOSH Methylene Chloride Hazard Alert - Focused on health effects and PPE		
M	letric 4:	Temporal Representativeness	High	$\times 2$	2	2012		
M	letric 5:	Sample Size	Low	× 1	3	no exposure data		
Domain 3: Accessibil	lity/Clari	tv						
		Metadata Completeness	Unacceptable	× 1	4	no exposure data		
Domain 4: Variabilit	v and Un	certainty						
		Metadata Completeness	Low	× 1	3	no exposure data		
Overall Quality Dete	rmination	n†	Unacceptable		4	Metric Mean Score: 2.8.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		14. Methylene chloride current i				
Type of Data Source		nal Exposure; Reports for Data	or Informat	tion Othe	er than i	Exposure or Release Data;
Hero ID	3978133					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Film Base	e Manufa	cturing	
Physical Form:	otion (bubec	legery or obo).	vapor	o ividilala	cearing	
Route of Exposur	e:		Inhalation	n		
Exposure Concen	tration (Uni	t):	0 to 350 p	ppm; mea	an expo	sure of 118.8 ppm in 1966 to 40.3 ppm in 197
			(reported	in other	sources	citing Friedlander et al, 1978
ENATUATION						
EVALUATION					_	_
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Low	× 1	3	NIOSH Intelligence Bulletin - references Friedlander 1978
Domain 2: Repres	sentative					
Bomain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	CTA film manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1956-1976
	Metric 5:	Sample Size	Medium	\times 1	2	range provided
Domain 3: Access	sibility/Clar	itv				
Domain 5. Meess	Metric 6:	Metadata Completeness	Low	\times 1	3	personal samples
Domain 4: Variab	-					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability
Overall Quality D	lotorminatia	n†	Medium		2.2	
Overan Quanty L	etermmatio	11.	Medium		2.2	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		14. Methylene chloride current i				
Type of Data Source Hero ID	Occupation 3978133	nal Exposure; Reports for Data	Exposure or Release Data;			
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact	ure of sv	nthetic	fibers
Physical Form:	(3.3	8,/-	vapor			
Route of Exposur	e:		Inhalation	n		
Exposure Concent		t):	5 to 900 p	opm (rep	orted b	y other sources citing Ott et al, 1983)
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Low	× 1	3	NIOSH Intelligence Bulletin - references Ott 1983
Domain 2: Repres	contativo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	× 2	2	CTA film manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1954-1977
	Metric 5:	Sample Size	Medium	\times 1	2	range provided
Domain 2. Access	.:b:1:4/Clam	:4				
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	personal samples
	1,100110 0.	metadata Completeness	LOW	^ 1	- 0	personal samples
Domain 4: Variab	oility and Ur	acertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion on uncertainty and variability
0 110 11		+	2.5.11			
Overall Quality D	eterminatio	n'	Medium		2.2	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Niosh,. 2014. Methylene chloride current intelligence bulletin.							
Type of Data Source		nal Exposure; Reports for Data	or Informat	ion Othe	er than i	Exposure or Release Data;			
Hero ID	3978133								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			All						
Life Cycle Descrip	otion (Subca	ategory of Use):	Mfg, use in flexible			ol propellant or fumigant, and blowing agent			
Number of Worker	rs:		1 million		c roams	•			
EVALUATION									
Domain		Metric	D - 45	MWF*	C	Comments			
Domain		Metric	Rating	MWF^	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	Low	× 1	3	NIOSH Intelligence Bulletin			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	Medium	$\times 2$	4	Total workers in USA			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1986			
	Metric 5:	Sample Size	N/A		N/A	n/a - not exposure data			
Domain 3: Access	ibility/Clari	itv							
	Metric 6:	Metadata Completeness	N/A		N/A	n/a - not exposure data			
Domain 4: Variab	ility and Ur	ocertainty							
Domain 4. Variab	Metric 7:	Metadata Completeness	N/A		N/A	n/a - not exposure data			
OII OIII D		†	Т		0.2				
Overall Quality D	eterminatio	n'	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha,. 201	2. Occupational safety and heal	th standards: To	oxic and	hazardo	ous substances: Methylene chloride.
Type of Data Source	Occupation	nal Exposure; Reports for Data	or Information (Other tha	n Expo	sure or Release Data;
Hero ID	3978279					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Regulation			
Life Cycle Descrip	otion (Subca	ategory of Use):	OSHA 29 CFF	R Part 19	10	
P	(0 44 1	87/-				
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Unacceptable	\times 1	4	No Comment.
Domain 2: Repres	entative					
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	OSHA standard discussing workplace safety. No exposure data.
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	n/a - not exposure data
	Metric 5:	Sample Size	Low	\times 1	3	n/a - not exposure data
Domain 3: Access	ibility/Clar	ity				
	Metric 6:	Metadata Completeness	${\bf Unacceptable}$	\times 1	4	n/a - not exposure data
Domain 4: Variab	-			_		
	Metric 7:	Metadata Completeness	Low	× 1	3	n/a - not exposure data
Overall Quality D	eterminatio	${f n}^{\dagger}$	Unacceptable		4	Metric Mean Score: 3.2.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source C	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 978298							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Route of Exposure: Number of Sites: Number of Workers:			Manufacture Manufacture of DCM Inhalation 4 84					
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments		
						Commons		
Domain 1: Reliabilit	ty Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
Domain 2: Represen	itative							
-	Metric 2:	Geographic Scope	High	\times 1	1	US		
N	Aetric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM		
N	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibi	ility/Clari	tv						
	Aetric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variabili	ty and Un Metric 7:	acertainty Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Dete	ermination	n [†]	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source C	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 978298							
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Route of Exposure: Number of Sites: Number of Workers:			Processing/Use Pesticide Manufacturing and Formulation Inhalation 60 120					
EVALUATION		25		2.633771				
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabilit	ty Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
Domain 2: Represen	ntative							
÷	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
N	Metric 3:	Applicability	High	$\times 2$	2	Pesticide Manufacturing and Formulation		
N	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
<u>N</u>	Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibi	;];+/Clon;	+						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variabili	ty and Ur	ocortainty.						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Dete	erminatio	†	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex				
Type of Data Source Hero ID	-	nal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;
	3978298					
EXTRACTION			D 4			
Parameter			Data			
Life Cycle Stage:			Processin	g		
Life Cycle Descrip	tion (Subca	ategory of Use):	Distributi	ion/Form	ulation	
Route of Exposure		,	Inhalation	n		
Number of Sites:			320			
Number of Worker	rs:		1,701			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabi	lity					
Domain 1. Renabi	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Repres	ontotivo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	$\stackrel{\wedge}{\times} \stackrel{1}{2}$	2	Distribution/Formulation
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
D	:1-:1:4/C1	•				
Domain 3: Accessi	Metric 6:	Metadata Completeness	Low	× 1	3	mode library and con
-	Metric 0.	Metadata Completeness	LOW	X 1	J	methodology unclear
Domain 4: Variabi	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed
0 11 0 11 15	,	†	M 1:		0.1	
Overall Quality De	eterminatio	n'	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.								
	ional Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;				
Hero ID 3978298									
EXTRACTION									
Parameter		Data							
Life Cycle Stage:		Processin	Œ						
Life Cycle Description (Sub	category of Use):	Aerosol F	_						
Route of Exposure:	category or esej.	Inhalation							
Number of Sites:		52	-						
Number of Workers:		520							
EVALUATION									
Domain	Metric	Rating	MWF^*	Score	Comments				
Domain 1. Daliabilitu									
Domain 1: Reliability Metric 1	: Methodology	High	× 1	1	OSHA - Final Rule				
- Wettic 1	. Wethodology	Iligii	× 1	1	OSHA - FIIIAI RUIE				
Domain 2: Representative									
Metric 2	: Geographic Scope	High	$\times 1$	1	US				
Metric 3	: Applicability	High	$\times 2$	2	Aerosol Packaging				
Metric 4	: Temporal Representativeness	Low	$\times 2$	6	pre 1997				
Metric 5	: Sample Size	Low	× 1	3	no statistics provided				
D									
Domain 3: Accessibility/Cl Metric 6	=	Low	× 1	3	modbololo modon				
Wietric o	: Metadata Completeness	LOW	X 1	- J	methodology unclear				
Domain 4: Variability and	Uncertainty								
Metric 7	· ·	Low	\times 1	3	variability or uncertanity not discussed				
Overall Quality Determinat	ion^\dagger	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
	ional Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;			
Hero ID 3978298								
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Processin	ď					
Life Cycle Description (Sub	category of Use):	Paint Rei	_	anufacti	iring			
Route of Exposure:	category or obej.	Inhalation		inaraco	8			
Number of Sites:		80						
Number of Workers:		200						
EVALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Metric 1	: Methodology	High	× 1	1	OSHA - Final Rule			
		6			0.0000			
Domain 2: Representative								
Metric 2	: Geographic Scope	High	\times 1	1	US			
Metric 3	: Applicability	High	$\times 2$	2	Paint Remover Manufacturing			
Metric 4	r - r	Low	$\times 2$	6	pre 1997			
Metric 5	: Sample Size	Low	× 1	3	no statistics provided			
Domain 3: Accessibility/Cla	nite							
Metric 6		Low	× 1	3	methodology unclear			
Wietiic 0	. Metadata Completeness	LOW	^ 1		methodology unclear			
Domain 4: Variability and	Uncertainty							
Metric 7	· ·	Low	\times 1	3	variability or uncertanity not discussed			
Overall Quality Determinat	ion^\dagger	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osh	na,. 199	7. Final rules: Occupational exp	posure to m	ethylene	chlorid	e.
· ·	-	nal Exposure; Reports for Data	or Informat	ion Othe	er than	Exposure or Release Data;
Hero ID 397	8298					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Processin	œ		
Life Cycle Description	(Subca	tegory of Use):	Paint Ma	_	no	
Route of Exposure:	(Dubca	legory or esc).	Inhalation		116	
Number of Sites:			49	-		
Number of Workers:			229			
EVALUATION						
Domain		Metric	Rating	MWF^*	Score	Comments
Domain 1. Daliabilita						
Domain 1: Reliability	tric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Wich	oric 1.	Wethodology	IIIgii			OSHA - Final Itule
Domain 2: Representa	tive					
-	tric 2:	Geographic Scope	High	$\times 1$	1	US
Met	tric 3:	Applicability	High	$\times 2$	2	Paint Manufacturing
Met	tric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
Met	tric 5:	Sample Size	Low	× 1	3	no statistics provided
Di 2. Ail-:1:4	/Cl:	4				
Domain 3: Accessibilit	ty/Ciari tric 6:	Metadata Completeness	Low	× 1	3	modbololo modon
Me	tric o.	Wetadata Completeness	LOW	X 1	<u>.</u>	methodology unclear
Domain 4: Variability	and Un	ocertainty				
	tric 7:	Metadata Completeness	Low	$\times 1$	3	variability or uncertanity not discussed
		1				·
Overall Quality Determ	mination	\mathbf{n}^{\dagger}	Medium		2.1	
5 · 22 · 22 · 24 · 25 · 25 · 25 · 25 · 2						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

-									
Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source	-	nal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;			
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Processin	g					
Life Cycle Descrip	otion (Subca	ategory of Use):	Adhesive		on				
Route of Exposur		, , ,	Inhalation	n					
Number of Sites:			165						
Number of Worke	rs:		497						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	•								
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Adhesive Production			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997			
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided			
Domain 2. Access	.:la:l:4/Clam								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear			
	Metric 0.	Metadata Completeness	LOW	× 1		methodology unclear			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
		+	2.5.11						
Overall Quality D	eterminatio	n'	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION			Data						
Parameter			Data						
Life Cycle Stage:			Processin	ıg					
Life Cycle Descrip		ategory of Use):	Ink and I	lnk Solver	nt Manu	ıfacturing			
Route of Exposure	e:		Inhalatio	n					
Number of Sites:			15						
Number of Worker	rs:		58						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabi	lity								
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule			
Domain 2: Repres	entative								
1	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Ink and Ink Solvent Manufacturing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997			
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided			
Domain 3: Access	ibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear			
Domain 4: Variab	ility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality De	eterminatio	${ m n}^{\dagger}$	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Source Citation: Osha, 1997. Final rules: Occupational exposure to methylene chloride.						
	onal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;		
Hero ID 3978298	3978298						
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subo	eategory of Use):	Solvent R	Recovery				
Route of Exposure:	attegory or esc).	Inhalation					
Number of Sites:		34	-				
Number of Workers:		137					
EVALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
	income deregj	****					
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Solvent Recovery		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibility/Cla	ni+						
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Weblie 0.	Metadata Completeness	LOW	^ 1		methodology unclear		
Domain 4: Variability and U	ncertainty						
Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed		
Overall Quality Determinati	on^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.						
Type of Data Source Hero ID	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3978298						
EXTRACTION							
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descrip	tion (Subca	ategory of Use):	Open Top	vapor I	Degreas	ing	
Route of Exposure		meger, er ese).	Inhalation		3 081 000	6	
Number of Sites:			278				
Number of Worker	rs:		608				
EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments	
Domain 1: Reliab	ility						
Domain 1. Renab.	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule	
Domain 2: Repres	entative						
Domain 2. Itopics	Metric 2:	Geographic Scope	High	\times 1	1	US	
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Open Top Vapor Degreasing	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997	
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided	
Domain 3: Access	ibility/Clar	itv					
	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear	
Domain 4: Variab	ility and Ur	ncertainty					
		Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed	
Overall Quality D	eterminatio	n [†]	Medium		2.1		
Overair Stainty D		**	Modfulli		2.1		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.						
Type of Data Source Hero ID	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3978298						
	3910290						
EXTRACTION Parameter			D-4-				
Parameter			Data				
Life Cycle Stage:			Use				
Life Cycle Descrip	tion (Subca	ategory of Use):	Conveyor	ized Vap	or Degr	easing	
Route of Exposure		,	Inhalation	n	_	-	
Number of Sites:			45				
Number of Worker	rs:		75				
EVALUATION							
		Matria	D - 4:	MANUEL	C	Comments	
Domain		Metric	Rating	MWF*	Score	Comments	
Domain 1: Reliabi	ility						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule	
Domain 2: Repres	entative						
Domain 2. 1ceptes	Metric 2:	Geographic Scope	High	\times 1	1	US	
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Conveyorized Vapor Degreasing	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997	
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided	
Domain 3: Accessi	ibility/Clar	itx					
Domain 5. Accessi	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear	
	1,100110 0.	Metadata Completeness	10W	^ 1		memodology diffical	
Domain 4: Variabi	ility and Uı	acertainty					
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed	
	_	+					
Overall Quality De	eterminatio	n'	Medium		2.1		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha, 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source Hero ID	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	tion (Subca	ategory of Use):		reasing a	nd Oth	er Cold Cleaning:		
Route of Exposure		, , , , , , , , , , , , , , , , , , , ,	Inhalation			0		
Number of Sites:			23717					
Number of Worker	s:	94,537						
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabi	lity							
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
Domain 2: Represe	entative							
	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Cold Degreasing and Other Cold Cleaning:		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessi	bility/Clar	itv						
	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear		
Domain 4: Variabi	ility and Ur	ncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality De	eterminatio	${f n}^{\dagger}$	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Source Citation: Osha, 1997. Final rules: Occupational exposure to methylene chloride.						
Hero ID 3978298	3978298						
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subo	eategory of Use):	Adhesive	Use				
Route of Exposure:	attegory or esc).	Inhalation					
Number of Sites:		1753					
Number of Workers:		5,269					
EVALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
					0.0000		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Adhesive Use		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibility/Cla	nity						
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Wietife 6.	medada Completeness	DOW	/\ I	- 0	memodologi direlear		
Domain 4: Variability and U	Incertainty						
Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed		
Overall Quality Determination	on^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Source Citation: Osha, 1997. Final rules: Occupational exposure to methylene chloride.						
	onal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;		
Hero ID 3978298	3978298						
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subo	eategory of Use):	Paint Str	inning: A	ircraft			
Route of Exposure:	attegory or esc).	Inhalation		incrair			
Number of Sites:		300					
Number of Workers:		2,470					
EVALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
					0.0000 2.0000		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	\times 1	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Paint Stripping: Aircraft		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibility/Cla							
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Metric 6.	Metadata Completeness	LOW	× 1	<u> </u>	methodology unclear		
Domain 4: Variability and U	ncertainty						
Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed		
Overall Quality Determination	on^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Source Citation: Osha, 1997. Final rules: Occupational exposure to methylene chloride.						
	onal Exposure; Reports for Data	or Informa	tion Othe	er than	Exposure or Release Data;		
Hero ID 3978298	3978298						
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subo	rategory of Use):	Furniture	Strippin	o			
Route of Exposure:	category of esc).	Inhalation		8			
Number of Sites:		6152					
Number of Workers:		7,872					
EVALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
	2.2.2.2.2.2.2.0.7	6			0.0000		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Furniture Stripping		
Metric 4:	T	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibility/Cla	nit						
Metric 6:	= -	Low	× 1	3	methodology unclear		
wethe 6.	Metadata Completeness	LUW	^ 1	J	methodology different		
Domain 4: Variability and U	Incertainty						
Metric 7:		Low	\times 1	3	variability or uncertanity not discussed		
Overall Quality Determinati	on^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Source Citation: Osha, 1997. Final rules: Occupational exposure to methylene chloride.						
Hero ID 3978298	3978298						
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subo	eategory of Use):	Other Inc	lustrial P	aint St	rinning		
Route of Exposure:	anegory or ose).	Inhalation		anie Se	bb2		
Number of Sites:		35041					
Number of Workers:		46,605					
EVALUATION							
Domain	Metric	Rating	MWF^{\star}	Score	Comments		
Daniel 1. Daliabilita							
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
Metric 1.	Methodology	Iligii	× 1	1	OSHA - FIIIAI RUIE		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	\times 1	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Other Industrial Paint Stripping		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Daniel 2. Acceptibility/Cla							
Domain 3: Accessibility/Cla Metric 6:	Metadata Completeness	Low	× 1	3			
Metric 6:	Metadata Completeness	LOW	X 1	- J	methodology unclear		
Domain 4: Variability and U	Incertainty						
Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed		
Overall Quality Determination	on^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	, , , , , , , , , , , , , , , , , , , ,							
Hero ID 3978298	3978298							
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subo	eategory of Use):		Polyureth	ane Foa	am Manufacturing			
Route of Exposure:	attegory or esc).	Inhalation		anc roc	in manaracouring			
Number of Sites:		100						
Number of Workers:		600						
EVALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule			
Medite 1.	Wethodology	111611	/\ 1		OBITA - I mai fedic			
Domain 2: Representative								
Metric 2:	Geographic Scope	High	$\times 1$	1	US			
Metric 3:	Applicability	High	$\times 2$	2	Flexible Polyurethane Foam Manufacturing			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997			
Metric 5:	Sample Size	Low	× 1	3	no statistics provided			
Damain 2. Acceptibility/Cla								
Domain 3: Accessibility/Cla Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear			
Wethe 0.	Metadata Completeness	LOW	× 1	<u> </u>	methodology unclear			
Domain 4: Variability and U	Incertainty							
Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed			
	-							
Overall Quality Determination	on^\dagger	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Osha, 1997. Final rules: Occupational exposure to methylene chloride.									
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;									
Hero ID	3978298	3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Electronic							
Route of Exposur		negory or obe).	Inhalation							
Number of Sites:	·		239	•						
Worker Activity:			semicondi	uctor						
Number of Worke	rs:		1,392							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ilitz									
Domain 1. Renad	Metric 1:	Methodology	High	$\times 1$	1	OSHA - Final Rule				
Domain 2: Repres										
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Electronics				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997				
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided				
Domain 3: Access	sibility/Clar	itv								
	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear				
Domain 4: Variab	-									
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed				
O11 O 124 D		†	M - 1:		0.1					
Overall Quality D	eterminatio	II '	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	, i i						
Hero ID 3978298							
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subo	ategory of Use):	Electronic	cs				
Route of Exposure:	attegery of esc).	Inhalation					
Number of Sites:		141					
Worker Activity:		Printed C	Circuit Bo	oards			
Number of Workers:		298					
EVALUATION							
Domain	Metric	Rating	MWF^{\star}	Score	Comments		
Daniel 1. Daliabilita							
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
Wiethic 1.	Methodology	IIIgii	× 1	1	OSHA - FINAL Rule		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Electronics		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	\times 1	3	no statistics provided		
Domain 3: Accessibility/Cla		-	_				
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variability and U	Incortainty						
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Wietric 7.	Metadata Completeness	ьом	^ 1	<u> </u>	variability of differentiality not discussed		
Overall Quality Determinati	on [†]	Medium		2.1			
Overan Quanty Determinati	OII.	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Source Citation: Osha, 1997. Final rules: Occupational exposure to methylene chloride.						
Hero ID 3978298	3978298						
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Processin	σ/Uso				
Life Cycle Description (Subo	eategory of Use):	Pharmace	U /	anufact	uring		
Route of Exposure:	attegory or esc).	Inhalation		anaract	ouring		
Number of Sites:		108					
Number of Workers:		1,431					
EVALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule		
	Memodology	****			Opini i mai itale		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Pharmaceutical Manufacturing		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997		
Metric 5:	Sample Size	Low	\times 1	3	no statistics provided		
Domain 3: Accessibility/Cla	ni+						
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Metric 0.	Metadata Completeness	LUW	^ 1		methodology difficient		
Domain 4: Variability and U	Incertainty						
Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed		
Overall Quality Determinati	on^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		97. Final rules: Occupational ex				
0.1	•	onal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;
Hero ID 3978	298					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description (Subc	atagary of Usa).	Film Base	o Manufa	cturing	
Route of Exposure:	Jube	ategory or osej.	Inhalation		cturing	
Number of Sites:			1			
Number of Workers:			500			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Di 1. D-li-l-ili4						
Domain 1: Reliability Metr	ia 1.	Methodology	High	× 1	1	OSHA - Final Rule
Wieti	IC 1.	Methodology	IIIgii	X 1	1	OSHA - Finai Rule
Domain 2: Representati	ve					
Metr		Geographic Scope	High	$\times 1$	1	US
Metr	ic 3:	Applicability	High	$\times 2$	2	Film Base Manufacturing
Metr	ic 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
Metr	ic 5:	Sample Size	Low	× 1	3	no statistics provided
D : 9 A :1:11	/CI	•,				
Domain 3: Accessibility Metr			Low	1	9	
Metr	ic o:	Metadata Completeness	LOW	× 1	3	methodology unclear
Domain 4: Variability a	nd II	ncertainty				
Metr		Metadata Completeness	Low	$\times 1$	3	variability or uncertanity not discussed
		A				·
Overall Quality Determ	natio	on^{\dagger}	Medium		2.1	
5.51am quanty Bottom						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		7. Final rules: Occupational ex				
Type of Data Source		nal Exposure; Reports for Data	or Informat	ion Othe	r than l	Exposure or Release Data;
Hero ID	3978298					
EXTRACTION			_			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	Plastics N	Ianufacti	ıring	
Route of Exposure		wegery or obe).	Inhalation		6	
Number of Sites:			80	_		
Worker Activity:			Injection	Molding		
Number of Worker	s:		240	O		
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1. Daliahi	1:4					
Domain 1: Reliabi	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
	MEGIIC 1.	Wethodology	IIIgii	^ 1	1	OSHA - Final Rule
Domain 2: Represe	entative					
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Plastics Manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
	Metric 5:	Sample Size	Low	$\times 1$	3	no statistics provided
D . a .						
Domain 3: Accessi			т.	4	0	
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variabi	ility and Ur	ocertainty				
Domain 4. Variabi	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
	1,100110 1.	modulus Completeness	DOW .		-	variability of differentiality not discussed
Overall Quality De	eterminatio	n [†]	Medium		2.1	
Overan Quanty De	eren mmario	11	Mediuill		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	997. Final rules: Occupational ex				
Type of Data Source Occupati Hero ID 3978298	onal Exposure; Reports for Data	or Informat	tion Othe	er than l	Exposure or Release Data;
EXTRACTION Parameter		Data			
Parameter		Data			
Life Cycle Stage:		Use			
Life Cycle Description (Sub-	category of Use):	Plastics N	Manufact	uring	
Route of Exposure:	,	Inhalation		_	
Number of Sites:		1323			
Worker Activity:		Lamination	on		
Number of Workers:		4,070			
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Domain 1. Deliability					
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Within 1.	Wethodology	IIIgii	× 1		OSHA - Pinai Itule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	$\times 1$	1	US
Metric 3:	Applicability	High	$\times 2$	2	Plastics Manufacturing
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Cla		т	1	0	
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and U	Incertainty				
Metric 7:	· ·	Low	\times 1	3	variability or uncertanity not discussed
	1				· · · · · · · · · · · · · · · · · · ·
Overall Quality Determinati	on^\dagger	Medium		2.1	
• • • • • • • • • • • • • • • • • • • •					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		7. Final rules: Occupational ex				
Type of Data Source		nal Exposure; Reports for Data	or Informat	ion Othe	er than l	Exposure or Release Data;
Hero ID	3978298					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	Plastics N	// Janufacti	ıring	
Route of Exposure		legery or obe).	Inhalation		6	
Number of Sites:			165	-		
Worker Activity:			Mold Rele	ease		
Number of Worker	rs:		497			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1. Daliahi	1:4					
Domain 1: Reliabi	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
	WICUIC 1.	Wethodology	111811			OSHA - Piliai Itule
Domain 2: Repres	entative					
1	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Plastics Manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
	Metric 5:	Sample Size	Low	$\times 1$	3	no statistics provided
D . a .						
Domain 3: Accessi			T	v. 1	9	
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variab	ility and Ur	ocertainty				
Domain 4. variab	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
	1.100110 1.		2011	~ 1		.a.rassing of anoticality not abounded
Overall Quality De	eterminatio	\mathbf{n}^{\dagger}	Medium		2.1	
Overall Quality Do	cociminatio	11	mediniii		4.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		7. Final rules: Occupational ex				
· -	Occupation 3978298	nal Exposure; Reports for Data	or Informa	tion Othe	er than	Exposure or Release Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descript	tion (Subca	ategory of Use):	Polycarbo	onate Ma	nufactu	ring
Route of Exposure		<i>y</i> ,	Inhalation			
Number of Sites:			4			
Number of Worker	s:		67			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabil	lity					
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Represe	entative					
=	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Polycarbonate Manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessi	bility/Clari	itv				
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variabi	lity and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality De	eterminatio	n [†]	Medium		2.1	
Overall Saulty De		••	Modium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex				
Type of Data Source Hero ID	Occupation 3978298	nal Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;
	3910290					
EXTRACTION Parameter			Data			
			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	Ink Solve	nt Use in	Printir	ng
Route of Exposure	e:		Inhalation	n		
Number of Sites:			11869			
Number of Worker	rs:		39,481			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabi	ility					
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Ink Solvent Use in Printing
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Access	ibility/Clar	itv				
	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear
Domain 4: Variab	ility and II-	agontointy				
Domain 4: variao	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
	MICHIC 1.	Metadata Completeness	LOW	^ 1	<u> </u>	variability of differentiality not discussed
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1	
5 . 52 552 3 555410 y 2						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Occupat	Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;						
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Route of Exposure: Number of Sites: Worker Activity: Number of Workers:			Use construction Inhalation 9504 paint stripping and foamblowing are essential operations of many of the jobs in which they are used 24,896				
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1	: Methodology	High	× 1	1	OSHA - Final Rule		
Domain 2: Representative Metric 2 Metric 3 Metric 4 Metric 5	: Applicability : Temporal Representativeness	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	US construction pre 1997 no statistics provided		
Domain 3: Accessibility/Cl Metric 6	•	Low	× 1	3	methodology unclear		
Domain 4: Variability and Metric 7		Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determinat	ion^\dagger	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	997. Final rules: Occupational ex				
	ional Exposure; Reports for Data	or Informat	tion Othe	er than	Exposure or Release Data;
Hero ID 3978298					
EXTRACTION					
Parameter		Data			
Life Cycle Stage:		Use			
Life Cycle Description (Sub	category of Use):	Shipyards	2		
Route of Exposure:	category or obej.	Inhalation			
Number of Sites:		25			
Number of Workers:		3,040			
EVALUATION					
Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1	: Methodology	High	× 1	1	OSHA - Final Rule
	. Wethodology	****8**			Opini Timar Italic
Domain 2: Representative					
Metric 2	: Geographic Scope	High	\times 1	1	US
Metric 3	: Applicability	High	$\times 2$	2	Shipyards
Metric 4	r - r	Low	$\times 2$	6	pre 1997
Metric 5	: Sample Size	Low	× 1	3	no statistics provided
D					
Domain 3: Accessibility/Cla Metric 6		Low	× 1	3	modbololo modon
Wietric o	: Metadata Completeness	LOW	X 1	J	methodology unclear
Domain 4: Variability and	Uncertainty				
Metric 7	· ·	Low	\times 1	3	variability or uncertanity not discussed
	-				
Overall Quality Determinat	ion^\dagger	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	European	European Chlorinated Solvents, Association. 2015. Health profile on dichloromethane.						
Type of Data Source	Occupation	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;						
Hero ID	3982133							
EXTRACTION								
Parameter			Data					
Tif Cl 1 Cl			T 1 4 A	· D				
Life Cycle Stage:	(C1	£ £ II).	Industry Assoc			A		
Life Cycle Descrip	otion (Subca	itegory of Use):	European Chlo	ormated i	Sorvent	ASSOC.		
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Damain 1. Daliah	:1:4							
Domain 1: Reliab	Metric 1:	Mathadalagy	Unaggantable	v 1	4	No Comment.		
	Metric 1:	Methodology	Unacceptable	× 1	4	No Comment.		
Domain 2: Repres	sentative							
1	Metric 2:	Geographic Scope	Medium	\times 1	2	Europe		
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	Industry advocacy brief, no data.		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2015		
	Metric 5:	Sample Size	Low	\times 1	3	no exposure data		
Domain 3: Access	ibility/Clar	itx						
Domain 5. Access	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	no exposure data		
Domain 4: Variab		<u> </u>						
	Metric 7:	Metadata Completeness	Low	× 1	3	no exposure data		
		+						
Overall Quality D	eterminatio	n'	Unacceptable		4	Metric Mean Score: 2.9.		

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Hsia,. 2013	3. TSCA work plan chemicals pr	rogram.			
Type of Data Source		nal Exposure; Reports for Data		Other tha	n Expo	sure or Release Data;
Hero ID	3982141	, ,			•	,
EXTRACTION						
Parameter			Data			
			Data			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ilitz					
Domain 1. Renau	Metric 1:	Methodology	Unacceptable	× 1	4	No methodology
	WICOTIC 1.	Wethodology	Спассериале	× 1	-	Tvo methodology
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	An industry argument against regulation of trichloroethylene.
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2013
	Metric 5:	Sample Size	Low	$\times 1$	3	no exposure data
Domain 3: Access		= -				
	Metric 6:	Metadata Completeness	Low	$\times 1$	3	no exposure data
Domain 4: Variab	sility and H	agartainty.				
Domain 4. variac	Metric 7:		Low	× 1	3	
	wietric 7:	Metadata Completeness	LOW	X 1	ა	no exposure data
0 11 0 12 12		†	TT (11		4	
Overall Quality D	eterminatio	n'	Unacceptable		4	Metric Mean Score: 2.7.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

 $[\]star$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		09. Health consultation: Indoor 4100152, Part 2.	air quality:	Raythe	on area:	: St. Petersburg, Pinellas County, Florida: EPA facility		
	Occupation 3982212	nal Exposure; Monitoring Data;						
EXTRACTION			_					
Parameter			Data					
Life Cycle Stage:			Ambient					
Life Cycle Descripti	ion (Subca	tegory of Use):	Disposal	(hazardo	us wast	e site)		
Physical Form:			vapor					
Route of Exposure:			inhalation					
Exposure Concentra		t):	None-Det	ected - 2	4 ug/m	3		
Number of Samples:			23					
Number of Sites:			1					
Type of Measurement or Method:			12-hour	. , .				
Worker Activity:			Ambient indoor air testing					
Type of Sampling: Sampling Location:			Area Multiple buildings adjacent to former Ratheon production site.					
Sampling Location: Exposure Duration:			varies					
Exposure Frequency			everyday					
Analytic Method:	у.		EPA Method Total Organic 15					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabili	itv							
	Metric 1:	Methodology	High	× 1	1	EPA Methods		
Domain 2: Represen	ntativa							
-	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	Low	\times 2	6	Focuses on ambient indoor air quality surrounding a forme manufacturing site.		
1	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2008, 10 years old		
	Metric 5:	Sample Size	Medium	× 1	2	Limited data characterization - not necessarily relatable to work scenario		
Domain 3: Accessib	oility/Clari	tx						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Detailed metadata is non-existent due to limited relevance of the sample set to workplace exposure.		
1	Metric 6:		Medium					

- continued from previous page

		ded from p		1 0	
Source Citation:	Atsdr,. 2009. Health consultation: Indoor ID: FLD004100152, Part 2.	air quality:	Raytheo	n area:	St. Petersburg, Pinellas County, Florida: EPA facility
Type of Data Source	Occupational Exposure; Monitoring Data;	;			
Hero ID	3982212				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Domain 4: Variab	bility and Uncertainty Metric 7: Metadata Completeness	Medium	× 1	2	Sample addresses the variability and limitations of the analysis well.
Overall Quality D	Determination [†]	Medium		2.0	

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	,	÷				California: Identification of chemicals of concern,
		sk assessment methods, and examination			e occupa	ational air concentrations.
Type of Data Source		nal Exposure; Completed Expos	ure or Risk Asse	ssments;		
Hero ID	3982225					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			California Risk	Assessn	nent	
į G						
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1. Daliah	:1:4					
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	Minal NIOCH OFHILA OCHA
	Metric 1:	Wethodology	IIIgii	X 1	1	Mixed, NIOSH,OEHHA,OSHA
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	Does not address Methylene Chloride in study.
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2007
	Metric 5:	Sample Size	Low	\times 1	3	no exposure data
D ' 9 A	11 111 /01	•,				
Domain 3: Access	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	
-	metric o.	Metadata Completeness	Unacceptable	X 1	4	no exposure data
Domain 4: Variab	oility and Ui	ncertainty				
		Metadata Completeness	Low	\times 1	3	no exposure data
Overall Quality D	eterminatio	n^{\dagger}	Unacceptable		4	Metric Mean Score: 2.7.

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		. Report on carcinogens: Dichlo	romethan	ie.		
Type of Data Source		nal Exposure; Monitoring Data;				
Hero ID	3982330					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Disposa	1		
Life Cycle Descrip	otion (Subce	atagary of Usa).		n Repackag	ing	
Route of Exposur		negory or ose).	Inhalati		,iiig	
Exposure Concent		t):		on pm (exha	aled bre	ath
Type of Sampling		·)·	Persona		arou bro	
<i>7</i> 1 1 0						
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
D : 1 D!:1	•1•					
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	references Thrall et al 2001
	Metric 1.	Wethodology	LOW	X 1	<u>.</u>	references I nrall et al 2001
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	waste repackaging
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre-2001
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
.						
Domain 3: Access	٠,		т.	1		
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variab	ility and Ur	ncertainty				
Domain 4. Varian	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Low		2.3	
Overall Quality D		11	LOW		2.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		. Report on carcinogens: Dichlo				
Type of Data Source		nal Exposure; Reports for Data	or Inform	ation Ot	her than	n Exposure or Release Data;
Hero ID	3982330					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			All			
Life Cycle Descrip	otion (Subca	ategory of Use):	All			
Route of Exposure			Inhalati	ion		
Worker Activity:			All			
Number of Worke	rs:		1,438,19	96		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Damain 1. Daliah	:1:4					
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	based on NIOSH 1990
	Metric 1.	Wethodology	LOW	× 1	<u> </u>	based on MOSH 1990
Domain 2: Repres	sentative					
•	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	overall DCM industry
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre-1990
-	Metric 5:	Sample Size	Low	\times 1	3	no statistics provided
D	:1::1:4/01					
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
	Metric 0.	Metadata Completeness	LOW	× 1	<u> </u>	methodology unclear
Domain 4: Variab	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	variability or uncertanity not discussed
Overall Quality D	eterminatio	n^{\dagger}	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Atsdr., 2000. Toxicological profile for methylene chloride. Type of Data Source Hero ID Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Worker Activity: Type of Sampling:		Use general work area and breathing zone (1968-1982) Vapor Inhalation 0.086-1411 ppm general work area and breathing zone (1968-1982) personal, area					
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1:	Methodology	Low	× 1	3	references IARC 1986		
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High Medium Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 4 6 3	US no specific workplace (general work area) pre 1982 no statistics provided		
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness		Low	× 1	3	methodology unclear		
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination	${ m on}^\dagger$	Low		2.6			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Hero ID Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3982430							
EXTRACTION Parameter	Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Worker Activity: Engineering Control & percent Exposure Reduction: PPE:		Manufacture Manufacture of DCM Vapor Inhalation 6 Drum filling Provides various options for engineernig control to reach OSHA PF lists standard PPE					
EVALUATION Domain Metric	Rating	MWF*	Caoro	Comments			
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule			
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size	High High Low Low	× 1 × 2 × 2 × 1	1 2 6 3	US Manufacture of DCM pre 1991 no statistics provided			
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear			
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality Determination †	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; Hero ID 3982430							
EXTRACTION Parameter	Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: Engineering Control & percent Exposure Reduction: PPE:		Use Aerosol Packing Aerosol Inhalation 217 2,182 Provides various options for engineernig control to reach OSHA PEL lists standard PPE					
EVALUATION							
Domain Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule			
Demain 9. Removements time							
Domain 2: Representative Metric 2: Geographic Scope	High	× 1	1	US			
Metric 3: Applicability	High	$\times 2$	2	Aerosol Packing			
Metric 4: Temporal Representativeness	Low	$\times 2$	6	pre 1991			
Metric 5: Sample Size	Low	\times 1	3	no statistics provided			
D : 0 A :1:11; /Cl ::							
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear			
Monte of Monadana Completeness	LOW	/\ 1		memodology unclear			
Domain 4: Variability and Uncertainty							
Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality Determination [†]	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1991. Proposed rules: Occupational Type of Data Source Hero ID Occupational Exposure; Reports for Data 3982430				
EXTRACTION Parameter	Data			
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: Engineering Control & percent Exposure Reduction: PPE:		g cure of Pa n various o dard PPI	ptions f	for engineernig control to reach OSHA PEL
EVALUATION Domain Metric	Rating	MWF*	Score	Comments
	Hatting	101 00 1	bcore	Comments
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	1 2	US Manufacture of Paints
Metric 4: Temporal Representativeness Metric 5: Sample Size	Low Low	× 2 × 1	6 3	pre 1991 no statistics provided
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination [†]	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Hero ID Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3982430							
EXTRACTION Parameter	Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: Engineering Control & percent Exposure Reduction: PPE:		Processing Manufacture of Paint Removers Vapor Inhalation 293 760 Provides various options for engineering control to reach OSHA PEL lists standard PPE					
EVALUATION		2000					
Domain Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule			
Domain 2: Representative							
Metric 2: Geographic Scope	High	× 1	1	US			
Metric 3: Applicability	High	$\times 2$	$\overline{2}$	Manufacture of Paint Removers			
Metric 4: Temporal Representativeness	Low	$\times 2$	6	pre 1991			
Metric 5: Sample Size	Low	$\times 1$	3	no statistics provided			
Danier 2 Acceptable (Classics							
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear			
Mount of Mountain Completeness	DOW	/\ I	-	memodology difficult			
Domain 4: Variability and Uncertainty							
Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality Determination †	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Hero ID Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3982430							
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: PPE:			Proc/Use Ink Manufacturing Vapor Inhalation 37 ink manufacturers 143 at ink manufacturers lists standard PPE				
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule		
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	US Ink Manufacturing pre 1991 no statistics provided		
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness		Low	× 1	3	methodology unclear		
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination	${ m n}^{\dagger}$	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Hero ID Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride. Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; 3982430							
EXTRACTION							
Parameter		Data					
Life Cycle Stage:		Use					
Life Cycle Description (Subca	ategory of Use):	Solvent re	ecovery				
Physical Form:		Vapor					
Route of Exposure:		Inhalation	ı				
Number of Sites:		40					
Number of Workers:		161		_			
PPE:		lists stand	lard PPI	€			
EVALUATION							
Domain	Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	US		
Metric 3:	Applicability	High	$\times 2$	2	Solvent recovery		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1991		
Metric 5:	Sample Size	Low	\times 1	3	no statistics provided		
Domain 3: Accessibility/Clari	ity						
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variability and Ur		т.					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination	\mathbf{n}^{\dagger}	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	1. Proposed rules: Occupationa nal Exposure; Reports for Data						
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subca	tegory of Use):	Use Degreasir	ng and M	etal Cle	vaning		
Physical Form:		Vapor					
Route of Exposure:		Inhalation					
Number of Sites:		22,652 co degreaser	_	sers; 12	9 open top degreasers; 111 conveyorized vapor		
Number of Workers:	Number of Workers:				; 271 at open top degreasers; 177 at convey-		
Engineering Control & percen PPE:	Engineering Control & percent Exposure Reduction: PPE:		Provides various options for engineernig control to reach OSHA PEL lists standard PPE				
EVALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	High	\times 1	1	OSHA - Proposed Rule		
Domain 2: Representative		TT: 1		1			
Metric 2: Metric 3:	Geographic Scope Applicability	High	$\times 1 \times 2$	$\frac{1}{2}$	US		
Metric 3: Metric 4:	Temporal Representativeness	High Low	$\times 2 \times 2$	6	Degreasing and Metal Cleaning pre 1991		
Metric 4. Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
					•		
Domain 3: Accessibility/Clari	=						
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variability and Un	certainty						
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination	n [†]	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	1. Proposed rules: Occupationa nal Exposure; Reports for Data				
EXTRACTION Parameter		Data			
Life Cycle Stage:		Use			
Life Cycle Description (Subca	tegory of Use):	Paint Str	ipping		
Physical Form:	,	Vapor			
Route of Exposure:		Inhalation	n		
Number of Sites:		75 large a	aircraft s	trippers	; 225 small air craft strippers; 4,000 furniture
Number of Workers:		furniture	arge airci strippers	raft strij s; 6,942	ppers; 799 at small air craft strippers; 5,720 at industrial firms
Engineering Control & percen PPE:	t Exposure Reduction:	Provides lists stand			for engineernig control to reach OSHA PEL
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	$\times 1$	1	US
Metric 3:	Applicability	High	$\times 2$	2	Paint Stripping
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1991
Metric 5:	Sample Size	Low	$\times 1$	3	no statistics provided
Domain 3: Accessibility/Clari	+				
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Un	ncertainty				
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination	n [†]	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	f Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;							
EXTRACTION Parameter		Data						
1 arameter		Data						
Life Cycle Stage:		Use						
Life Cycle Description (Subcate	gory of Use):	Polyureth	ane Foar	n Blowi	ng			
Physical Form:	,	Vapor						
Route of Exposure:		Inhalation	n					
Number of Sites:		180						
Worker Activity:		pouring,	cooling/c	uring				
Number of Workers:		1,169						
Engineering Control & percent Exposure Reduction: PPE:		Provides lists stand			or engineernig control to reach OSHA PEL			
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability								
	Methodology	High	× 1	1	OSHA - Proposed Rule			
Domain 2: Representative								
	Geographic Scope	High	$\times 1$	1	US			
	Applicability	High	$\times 2$	2	Polyurethane Foam Blowing			
	Temporal Representativeness	Low	$\times 2$	6	pre 1991			
Metric 5: S	ample Size	Low	× 1	3	no statistics provided			
Domain 3: Accessibility/Clarity								
	Metadata Completeness	Low	× 1	3	methodology unclear			
Domain 4: Variability and Unce	rtainty							
	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality Determination [†]		Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Occ									
EXTRACTION Parameter									
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Engineering Control & percent Exposure Reduction: PPE:			Use Cellulose Triacetate and Film Base Production Vapor Inhalation 1 Provides various options for engineering control to reach OSHA PEL lists standard PPE						
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability	etric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule			
Me Me	etric 2: etric 3: etric 4: etric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	US Cellulose Triacetate and Film Base Production pre 1991 no statistics provided			
Domain 3: Accessibilit	ty/Clari etric 6:	ty Metadata Completeness	Low	× 1	3	methodology unclear			
Domain 4: Variability Me	and Unetric 7:	certainty Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality Determination [†]		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1991. Proposed rules: Occupational Type of Data Source Hero ID Occupational Exposure; Reports for Data 3982430						
EXTRACTION Parameter	Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: Engineering Control & percent Exposure Reduction: PPE:		Use Electronics Vapor Inhalation 1059 4,720 Provides various options for engineernig control to reach OSHA PEL lists standard PPE				
EVALUATION						
Domain Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule		
Domain 9. Domagantativa						
Domain 2: Representative Metric 2: Geographic Scope	High	× 1	1	US		
Metric 3: Applicability	High	$\times 2$	2	Electronics		
Metric 4: Temporal Representativeness	Low	$\times 2$	6	pre 1991		
Metric 5: Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessibility/Clarity						
Metric 6: Metadata Completeness	Low	$\times 1$	3	methodology unclear		
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination †	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data; Hero ID 3982430							
EXTRACTION Parameter		Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: PPE:			Proc/Use Printing Vapor Inhalation 10,482 printers 34,868 at printers lists standard PPE				
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule		
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	US Printing pre 1991 no statistics provided		
Domain 3: Accessibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variability and Un Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination †		Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1991. Proposed rules: Occupational Type of Data Source Occupational Exposure; Reports for Data 3982430							
EXTRACTION Parameter	Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Number of Workers: Engineering Control & percent Exposure Reduction: PPE:	Vapor Inhalation 4 67 Provides	Polycarbonate Resin Manufacturing Vapor Inhalation 4					
EVALUATION							
Domain Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule			
Domain 2: Representative							
Metric 2: Geographic Scope	High	× 1	1	US			
Metric 3: Applicability	Medium	$\times 2$	4	Polycarbonate Resin Manufacturing			
Metric 4: Temporal Representativeness	Low	$\times 2$	6	pre 1991			
Metric 5: Sample Size	Low	× 1	3	no statistics provided			
Domain 3: Accessibility/Clarity							
Metric 6: Metadata Completeness	Low	\times 1	3	methodology unclear			
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed			
Overall Quality Determination †	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha,. 1991. Proposed rules: Occupationa Type of Data Source Occupational Exposure; Reports for Data Hero ID 3982430						
EXTRACTION Parameter	Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Number of Sites: Worker Activity: Number of Workers: Engineering Control & percent Exposure Reduction: PPE:	Processin Pharmace Vapor Inhalation 76 Pill coatin 1,007 Provides	Processing Pharmaceuticals Manufacturing Vapor Inhalation 76 Pill coating				
EVALUATION Domain Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule		
Domain 2: Representative						
Metric 2: Geographic Scope	High	× 1	1	US		
Metric 3: Applicability	Medium	× 2	4	Pharmaceuticals Manufacturing		
Metric 4: Temporal Representativeness Metric 5: Sample Size	Low Low	$\times 2 \times 1$	6 3	pre 1991 no statistics provided		
Domain 3: Accessibility/Clarity						
Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear		
Domain 4: Variability and Uncertainty						
Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Determination †	Low		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		91. Proposed rules: Occupationa				
Type of Data Source		nal Exposure; Reports for Data	or Informat	tion Othe	er than l	Exposure or Release Data;
Hero ID	3982430					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Proc/Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	Food extr			
Physical Form:	Mon (Bubec	ategory or obe).	Vapor	action		
Route of Exposure	e:		Inhalation	1		
Number of Sites:			3 food pro		compan	ies
PPE:			lists stand	_		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabi	:1;+					
Domain 1. Renadi	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
	WICUIC 1.	Wethodology	IIIgii	× 1		OSHA - Hoposed Itule
Domain 2: Repres	entative					
_	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Food extraction
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	pre 1991
	Metric 5:	Sample Size	Low	$\times 1$	3	no statistics provided
D 2. A	:1-:1:4/01					
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	9	
	Metric 6:	Metadata Completeness	LOW	X 1	3	methodology unclear
Domain 4: Variab	ility and Ui	ncertainty				
25 Official 1. Vollage.	Metric 7:	Metadata Completeness	Low	$\times 1$	3	variability or uncertainty not discussed
						· · · · · · · · · · · · · · · · · · ·
Overall Quality De	eterminatio	n^\dagger	Medium		2.1	
· · · · · · ·						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Ec,. 2009 (dichlorom	nethane).				ccupational exposure limits from methylene chloride
Type of Data Source Hero ID	Occupation 3982443	nal Exposure; Reports for Data	or Informat	ion Othe	er than	Exposure or Release Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ilitz					
Domain 1. Iteliao	Metric 1:	Methodology	High	× 1	1	EC report - References Friedlander 1978 (HEROID 65067) Hearne and Pifer 1999 (HEROID 730525), Ott et al 1983 (HERO ID29149), Gibbs 1996 (730533) (see tab)
Domain 2: Repres	sentative					
Domain 2. Repres	Metric 2:	Geographic Scope	Medium	\times 1	2	Europe
	Metric 3:	Applicability	High	$\times 2$	2	Covers various industries
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	Most data >20 years old
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Access	ribility/Clar	ity				
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear
D : 4 W : 1	.1., 1.11					
Domain 4: Variab			т	4	0	
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.2	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	CalEpa,. 2005. Appendix D.3 Chronic RELS and toxicity summaries using the previous version of Hot Spots Risk Assessment guidelines (OEHHA 1999). Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;							
	3982628							
EXTRACTION Parameter			Data					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descript	ion (Subca	ategory of Use):	Film Base	e Manufa	cturing			
Physical Form:	`	,	vapor		_			
Route of Exposure:			inhalation	ı				
Exposure Concentra			30-125 pp	m (repo	rted in o	other sources citing Friedlander et al, 1978)		
Type of Measureme		hod:	8-hr TWA	1				
Number of Workers	3:		751					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabili	ity							
	Metric 1:	Methodology	Medium	\times 1	2	cites Friedlander et al, 1978		
Domain 2: Represe								
	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	CTA film manufacturing		
	Metric 4:	Temporal Representativeness Sample Size	Low Low	$\times 2 \times 1$	6 3	pre 1978		
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided		
Domain 3: Accessib	oility/Clar	ity						
	Metric 6:	Metadata Completeness	Low	\times 1	3	methodology unclear		
D : 4 W : 1 '1	., 1.77							
Domain 4: Variabil			т	v. 1	9			
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed		
Overall Quality Det	terminatio	\mathbf{n}^{\dagger}	Medium		2.2			
Overan Quanty De	oci iiiiiiatiO	11	Mediuili		4.4			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Dhhs,. 1992. In- Depth Survey Report: The Control of Methylene Chloride in Furniture Stripping at The JM Murray Co-Inc.								
Type of Data Source Hero ID		nal Exposure; Monitoring Data;							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Furniture		g				
Physical Form:			liquid, va						
Route of Exposur			inhalation	,					
Exposure Concent		t):				: 1-189 ppm			
Number of Sampl	es:		Personal:	27Area:	108				
Number of Sites:	3.5	, ,	1						
Type of Measuren		hod:	short-terr						
Type of Sampling:			Personal,		, .				
	Sampling Location:			rototype	strippe	er			
	Exposure Duration: Exposure Frequency:		varies everyday						
		nt Exposure Reduction:	New Stripping Station with better airflow						
PPE:	ioi & percei	it Exposure reduction.	shoulder length gloves, full-face mask						
Analytic Method:			NIOSH 1005						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
Bomaii I. Itonas	Metric 1:	Methodology	High	× 1	1	Niosh 1005			
Domain 2: Repres	entative								
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that has potential exposure to employees			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1992, 26 years old and prior to most recent PEL			
	Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points			
Domain 3: Access	ibility/Clar	ity							
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Was run as a preliminary test of a prototype system. Actual worker exposure data was not present.			

		Conti	inueu nom p	revious	page	
Source Citation:	Dhhs,. 199 Inc.	2. In- Depth Survey Report:	The Control o	f Methyl	ene Chl	oride in Furniture Stripping at The JM Murray Center,
Type of Data Source	Occupation	nal Exposure; Monitoring Dat	ta;			
Hero ID	3986433					
EVALUATION						
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Domain 4: Varial	v	v	M 1.	1	0	
	Metric 7:	Metadata Completeness	Medium	× 1	2	NIOSH Method has uncertainty included.
Overall Quality D	etermination	\mathbf{n}^{\dagger}	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Cone Mills, Corp. 1981. HEALTH & SAFETY STUDY REPORT (EPA 40 CFR PART 716). Type of Data Source Hero ID Cocupational Exposure; Monitoring Data; 4213651							
EXTRACTION		Data					
Parameter	Parameter						
Life Cycle Stage: Life Cycle Description (Subcate Physical Form: Route of Exposure: Exposure Concentration (Unincentration of Samples: Number of Sites: Type of Measurement or Met Worker Activity: Number of Workers: Type of Sampling: Sampling Location: Exposure Duration: PPE:	Industrial, commercial and consumer uses Adhesives and sealants spray, vapor from curing Inhalation from 25 - 33 ppm 3 1 NIOSH P&CAM 127 Polyurathane chair molding (pg 8 of 17) 3 personal Three job operations or locations (i.e., flexible foam mold release spraying, rigid foam mold release spraying (small parts and large parts)).						
EVALUATION Domain	Metric	Rating	MWF^{\star}	Score	Comments		
	Moure	Tatting		Beore	Comments		
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company's Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	North Carolina - US		
Metric 3:	Applicability	High	$\times 2$	2	Use in scope		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1982 and prior to most recent PEL		
Metric 5:	Sample Size	High	× 1	1	discrete data given		
Domain 3: Accessibility/Clar							
Metric 6:	Metadata Completeness	High	× 1	1	all metedata described		
	Continued on next page						

					1 0			
Source Citation: Type of Data Source Hero ID		Cone Mills, Corp. 1981. HEALTH & SAFETY STUDY REPORT (EPA 40 CFR PART 716). Occupational Exposure; Monitoring Data; 4213651						
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
Domain 4: Variab	v	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
Overall Quality D	etermination	${f n}^{\dagger}$	Medium		1.7			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	lls, Corp. 1981. SURVEY RESUI ional Exposure; Monitoring Data;	TS OF PE	ERSONAI	L EXPO	OSURE MONITORING WITH COVER LETTER.					
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Number of Samples: Number of Sites: Type of Measurement or Method: Worker Activity: Number of Workers: Type of Sampling: Sampling Location: Exposure Duration: PPE:		Industrial, commercial and consumer uses Propellants and blowing agents spray, vapor from curing Inhalation Personal: from 4 to 280 ppmArea: from 540 to 2,130 ppm 17 1 NIOSH P&CAM 127 Polyurathane foam production (pgs 5, 7, and 9 of 10)Data on page 9 was a repeat of data from HERO ID: 4213651 not specified personal and area Job operations or locations (e.g., foam line operator, foam line assistant, cut-off saw operator, crane operator in foam storage room). Personal: from 4 and 5 hrsArea: from 1.5 to 5 hrs not specified								
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments					
	1120110		111,1,1		Commones					
Domain 1: Reliability Metric 1	: Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.					
Domain 2: Representative Metric 2 Metric 3 Metric 4 Metric 5	: Applicability : Temporal Representativeness	High High Low High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 1	North Carolina - US Use in scope More than 20 years old i.e., 1982 and prior to most recent PEL discrete data given					
Domain 3: Accessibility/Cla	arity									
	Cor	ntinued on	next page	е						

Source Citation: Type of Data Source Hero ID		s, Corp. 1981. SURVEY RES nal Exposure; Monitoring Da		RSONAI	EXPC	SURE MONITORING WITH COVER LETTER.
EVALUATION						
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
	Metric 6:	Metadata Completeness	High	× 1	1	all metadata given
Domain 4: Varial	oility and Ur	ncertainty				
	Metric 7:	_	Low	\times 1	3	No discussion of variability or uncertainty
Overall Quality I	Determinatio	\mathbf{n}^{\dagger}	Medium		1.7	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Burlington Indus, Inc. 1979. Solvent exportage of Data Source Occupational Exposure; Monitoring Data; 4213722	sure monit	oring resu	ılts with	n cover letters.				
EXTRACTION Parameter	Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Number of Samples: Number of Sites: Worker Activity: Number of Workers: Type of Sampling: Sampling Location:		Industrial, commercial and consumer uses Solvents (for cleaning or degreasing) spray and vapor Inhalation Personal: from 139 to 213 ppmArea: 708 ppm 10 1 Organic solvents are used in various operations at the Goldsboro plant" as a rust prevetative" to remove grease and oil" employees are exposed to the solvents in all of these operations. not specified personal and area Job operations or locations (e.g., machine cleaning).						
Exposure Duration: PPE:	pending "Goldsbo pirators respirato	The sample durations varied from a few minutes to several hour, depending upon the duration of solvent usage in the operation. "Goldsboro plant emplyees using Solvex II did use organic vapor respirators while the spraying was done, but the data indicate that these respirators would have to be worn during the entire cleaning operation to provide adequate protection" an alternative is to find another solvent"						
EVALUATION								
Domain Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliability Metric 1: Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.				
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness	High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	1 2 6	North Carolina - US Use in scope More than 20 years old i.e., 1979 and prior to most recent PEL				

Source Citation: Type of Data Source Hero ID	0	Indus, Inc. 1979. Solvent ex nal Exposure; Monitoring Dat		oring resu	ılts with	n cover letters.
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
	Metric 5:	Sample Size	Low	× 1	3	Sample statistics not discussed, however, since this is an IH survey it can be assumed that this was considered.
Domain 3: Access	sibility/Clari Metric 6:	ity Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results, and assumptions.
Domain 4: Variak	U	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality I	etermination	${f n}^{\dagger}$	Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Burlington Indus, Inc. 1979. Solvent exposure monitoring results with cover letters. Occupational Exposure; Monitoring Data; 4213722									
EXTRACTION Parameter				Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Physical Form: Route of Exposure: Exposure Concentration (Unit): Number of Samples: Number of Sites: Worker Activity: Number of Workers: Type of Sampling: Sampling Location: Exposure Duration: Engineering Control & percent Exposure Reduction:		Industrial, commercial and consumer uses Solvents (for cleaning or degreasing) spray and vapor Inhalation Personal: 312 ppmArea: from 117 to 227 ppm 3 1 End ring cleaning - screen engraving not specified personal and area Area sampling locations (i.e., where cleaning was done, on cover of wash tank) "the employee rotate thru this job and are exposed only one hour per day" No corrective action is required"								
PPE:		not speci	fied							
EVALUATION										
Domain	Metric	Rating	MWF^*	Score	Comments					
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company's Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.					
Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Applicability Temporal Representativeness	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	North Carolina - US Use in scope More than 20 years old i.e., 1980 and prior to most recent PEL Sample statistics not discussed, however, since this is an IH survey it can be assumed that this was considered.					
	Cor	ntinued on	next page)						

Source Citation: Type of Data Source Hero ID	_	n Indus, Inc. 1979. Solvent exp nal Exposure; Monitoring Dat		oring resu	ılts with	n cover letters.
EVALUATION						
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results, and assumptions.
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Medium	× 1	2	Limited discussion on uncertainty
Overall Quality I	Determinatio	\mathbf{n}^{\dagger}	Medium		1.8	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Iero ID 4213729	osure, Completed Ex	posure or Risk	Assessments;					
EXTRACTION Parameter		Data						
Life Cycle Stage:		Industria	, commercial and consu	ımer uses				
Life Cycle Description (Subcategory	of Use):			ng) - Aerosol spray degreaser/cleaner				
Route of Exposure: Exposure Concentration (Unit):		of 25)* O	Truck Plant - 1981* Spil House: 15-minute sam	oray Booths: 0.06 and 0.78 ppm (pg 21 aples from 69.9 to 0.79 ppm (TWA=7.1 Car Wash Deck: 0.07 to 2.3				
Number of Samples:		13	,					
Number of Sites:		3						
Type of Measurement or Method: Worker Activity:			plication of a sealer to	the outside of vehicle firewalls. Mixed				
		solvent va in a syste		cases up to four soulvents are contained				
Number of Workers:		13 total	111.					
Type of Sampling:		DuPont 1	DuPont P-125 personal sampling pump with charcoal tube. An with gas chromatorgraphy.					
Sampling Location:			oths, Oil House, Car Wa					
Exposure Duration:			om all day to 15-minute					
Engineering Control & percent Expose PPE:	ure Reduction:	upgraded employee the man- exposures Oil House derite Ca of 25).Oil	Subsequent to initial complints, the ventilation in the work area we upgraded by positioning two man-cooling fans to blow on the affected employee at an air velocity of 50 to 500 feet per minute" the operation the man-cooling fans did not have a significant effect on overall employees (pg 10 of 25). Oil House: impervious gloves required for paint mixers (pg 16 of 25). Both derite Car Wash Deck: impervious gloves with gauntlets required (pg 16 of 25). Oil House: impervious gloves were not worn buring the survey but should be required to minimise skin contact various forms of vertical to the survey of the sur					
EVALUATION			re employed in this area ing (pg 18 of 25).	e.g., booth controlling emissions from				
Domain	Metric	Rating	MWF* Score	Comments				

Source Citation: Type of Data Source Hero ID	Ford Motor, Co. 1981. Industrial hygiene survey - spray booths, oil house, roll weld, bonderite deck, trimline. Occupational Exposure; Completed Exposure or Risk Assessments; 4213729						
EVALUATION							
Domain		Metric	Rating	MWF*	Score	Comments	
Domain 1: Reliab	ility						
	Metric 1:	Methodology	Medium	\times 1	2	Data from user, who is also the author of the report	
Domain 2: Repres	sentative						
	Metric 2:	Geographic Scope	High	$\times 1$	1	US	
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope	
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1982-1981	
	Metric 5:	Sample Size	Low	× 1	3	Distribution characterized by no statistics.	
Domain 3: Access	sibility/Clar	ity					
	Metric 6:	Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results.	
Domain 4: Varial	oility and Ur	ocertainty					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability	
Overall Quality Determination [†]			Medium		2.0		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source	FORMULATED AUTOPAK CHEM SY Occupational Exposure; Monitoring Dat					ELS OF METHYLENE CHLORIDE FROM NEWLY TER.			
EXTRACTION Parameter			Data						
Physical Form: Route of Exposure:	Life Cycle Description (Subcategory of Use): Physical Form:			(for clean l vapor n	ing or o	d consumer uses degreasing)			
Exposure Concentr Number of Samples Number of Sites:		t):	Personal: approx-in 1		4 to 24	1 ppmArea: from 1.3 to 10.1 ppm			
Worker Activity:				Exposure from the newly formulated Autopak" Chemical Systems" Breathing zone studies were made using a Bacharach Model TLV sniffer during simulated packaging operations (pg 5 of 68). Lab operations, purge operator, blend operator, etc. (pgs 10, 14, 19, 24, 27, 28, 30, 35, 40, 47, 51, 54, 57, 62, 64 of 68).					
Type of Sampling: Sampling Location:	Number of Workers: Type of Sampling: Sampling Location: Engineering Control & percent Exposure Reduction:			not specified personal and area Breathing zone sampling events (i.e., initial injection, package closed). "Excellent progress has and is being made in regard to alleviating air contaminant concentrations through design and equipment changes" design changes in the foam" a new hood has been installed (pg 8 of 68)""Develop a housekeeping plan to keep rags containing solvents in closed (preferably ventilated) containers when not in use (pg 44 of 68).""Container of methylene chloride and other solvents should be covered when not in use (pg 60 of 68)."					
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabil	ity Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted these studies.			
Domain 2: Represe	ntative Metric 2:	Geographic Scope	High	× 1	1	US			
			Continued on 1	next page	!				

Source Citation: Type of Data Source Hero ID	FORMUL	Olin, Corp. 1977. DETERMINATION OF THE EMISSION LEVELS OF METHYLENE CHLORIDE FROM NEWLY FORMULATED AUTOPAK CHEM SYSTEMS WITH COVER LETTER. Occupational Exposure; Monitoring Data; 4213766						
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1977 and prior to most recent PEL		
	Metric 5:	Sample Size	Low	× 1	3	Sample statistics not discussed, however, since this is an IH survey it can be assumed that this was considered.		
Domain 3: Access	sibility/Clar	ity						
	Metric 6:	Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results, and assumptions. $$		
Domain 4: Variab	·	v						
	Metric 7:	Metadata Completeness	Medium	$\times 1$	2	Limited discussion on uncertainty		
Overall Quality D	Determinatio	\mathbf{n}^{\dagger}	Medium		1.8			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		NE SURVE	Y CORP	PROT	ECTION AREA WITH COVER LETTER & MEMO.			
Type of Data Source Occupation Hero ID 4213778	nal Exposure; Monitoring Data;							
EXTRACTION								
Parameter								
Life Cycle Stage:		Processin	ıg					
Life Cycle Description (Subc	ategory of Use):		0	formula	tion, mixture, or reaction product			
Physical Form:		vapor						
Route of Exposure:		Inhalation						
Exposure Concentration (Un	it):				d from 0.15 to 21.77 ppmWhile drumming,			
		487.3 ppr	n (pg 13	of 28).				
Number of Samples:		5						
Number of Sites:		1						
Type of Measurement or Met	zhod:	charcoal						
Worker Activity:					the focus of the study."The short term sample			
					was drumming methyelene chlorine was a non-			
NT 1 C XX7 1				and pro	per respiratory protection was being worn."			
Number of Workers:		not specified						
Type of Sampling:		personal and area Short and long term samples collected (i.e., 1 and 5 hours).						
Exposure Duration: Exposure Frequency:		non-routi			oles collected (i.e., I and 5 nours).			
PPE:					hould assist the Crop Protection Department			
FFE.					h emplyees concerning the use of respiratory			
		protection			in emptyees concerning the use of respiratory			
		protection	n (pg 20)	or 20).				
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability								
Metric 1:	Methodology	Low	\times 1	3	not described			
Domain 2: Representative		High	× 1					
	Metric 2: Geographic Scope			1	US data			
Metric 3:	Metric 3: Applicability			4	Use of DCM not clear in the study but assumed to be similar to industrial uses in scope			
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1979 and prior to most recent PEL $$			
Metric 5:	Sample Size	High	× 1	1	discrete samples given			
	Cor	ntinued on i	next page					

Source Citation: Type of Data Source Hero ID		o. 1979. INDUSTRIAL HYGI nal Exposure; Monitoring Dat		Y CORP	PROT	ECTION AREA WITH COVER LETTER & MEMO.
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Varial	oility and Ur Metric 7:	v	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.2	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

LIMI	Γ (TOEL) FOR DICHLOROMETH Datational Exposure; Monitoring Data	IANE WIT			OCAL TEMPORARY OCCUPATIONAL EXPOSURE TS AND COVER LETTER DATED 110987.			
EXTRACTION								
Parameter		Data						
Life Cycle Stage:		Distribut	ion in co	mmerce				
	Life Cycle Description (Subcategory of Use):							
Physical Form:		vapor	G1.		(
Route of Exposure:	(11 '1)				s minimal (pg 10 of 19)			
Exposure Concentration	(Unit):	(at La M to 94 pp	liranda aı	nd Oakla a mean	30 ppm for drum loading, less than 3 ppm for and LCL plants)truck loading - from 0.1 ppm of 28 ppm (from less than 25 percent of the as LLC).			
Number of Samples:		7			,			
Number of Sites:		$25 \mathrm{DCM}$ i	s handled	at all 2	5 chemical distribution centers in the company.			
Worker Activity:		loading	filling drums/loading trucks; drumming solvent; transfer loading; truck loading					
Number of Workers:		_			truck drivers			
Type of Sampling:		•	and area					
Exposure Duration:		8 hrs						
PPE:		gloves, but respriators may not be routinely used. The use of respiratory protection and gloves during truck loading has been recommented to plant management based on these monitoring results.						
EVALUATION								
Domain	Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliability								
Metri	c 1: Methodology	Low	× 1	3	Not Specified			
Domain 2: Representative	re.							
Metri		High	$\times 1$	1	US data			
Metri	9 1	High	$\times 2$	2	Use in scope			
Metri	c 4: Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1979 and prior to most recent PEL			
Metri	c 5: Sample Size	High	× 1	1	discrete data given			
	Co	ntinued on	next page	Э				

					1.8.			
Source Citation:	,	Unocal, Corporation. 1986. MEMORANDUM REGARDING UNOCAL TEMPORARY OCCUPATIONAL EXPOSURE LIMIT (TOEL) FOR DICHLOROMETHANE WITH ATTACHMENTS AND COVER LETTER DATED 110987.						
Type of Data Source	Occupation	nal Exposure; Monitoring Data	a:					
Hero ID	4213814	r	,					
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
Domain 3: Access	sibility/Clari Metric 6:	ity Metadata Completeness	Medium	× 1	2	Mark and all the sign of the second control		
	Metric 6:	Metadata Completeness	Medium	X 1		Most metadata given, missing exposure frequency and duration		
Domain 4: Varial	oility and Ur Metric 7:	-	Low	× 1	3	No discussion of variability or uncertainty		
	Metric 7.	Metadata Completeness	LOW	× 1	<u> </u>	No discussion of variability or uncertainty		
Overall Quality I	Determinatio	\mathbf{n}^{\dagger}	Medium		2.0			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ource Citation: Olin, Chemicals. 1977. ENVIRONMENT PLANT.			ral hygi	ENE SU	RVEY (OF THE OLIN CHEMICALS BROOK PARK, OHIO			
ype of Data Source C		nal Exposure; Monitoring Data;							
XTRACTION									
Parameter			Data						
Life Cycle Stage:			Industrial	l, comme	cial and	d consumer uses			
Life Cycle Description	on (Subca	tegory of Use):	Solvents	for clean	ing or d	legreasing)			
Physical Form:			vapor						
Route of Exposure:			Inhalation	n					
Exposure Concentra	tion (Uni	t):	From 0.1	to 633 pj	om (pg	5 of 17)			
Number of Samples:			14						
Number of Sites:			1						
Worker Activity:			purge operations, cylinder cleaning, blending, laboratory operations, kettle area, filter cleaning						
Number of Workers:			not specif		Ü				
Type of Sampling:			not specified						
Sampling Location:			see worke	r activity					
Exposure Duration:			not specified not specified						
Exposure Frequency	:								
Engineering Control	& percen	t Exposure Reduction:		nd cleani		elf cleaning filter to overcome the necessity of system, laboratory work should be done in the			
VALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabilit	ty								
N	Metric 1:	Methodology	Medium	× 1	2	Described, but not named			
Domain 2: Represen	itative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	Ohio - US			
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope			
Ν	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1977 and prior to most recent PE			
Metric 5: Sample Size			High	$\times 1$	1	discrete data given			
N	neuro 5.	Sample Size							

			ilucu iroini j	provious	page	
Source Citation:	Olin, Cher PLANT.	micals. 1977. ENVIRONMEN	NTAL HYGI	ENE SU	RVEY (OF THE OLIN CHEMICALS BROOK PARK, OHIO
Type of Data Source	Occupation	nal Exposure; Monitoring Data	a;			
Hero ID	4213837	,				
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
	Metric 6:	Metadata Completeness	Medium	× 1	2	missing sample durations but indicated as a full-shift TWA, other metadata given
Domain 4: Varial	v	ē.	-	_		
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality I	Determinatio	n [†]	Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Olin, Chemicals. 1982. ENVIRONMENT PLANT.			ENE SUI	RVEY	OF THE BROOK PARK, OHIO OLIN CHEMICALS		
ype of Data Source Occupation ero ID 4213838							
XTRACTION							
Parameter		Data					
Life Cycle Stage:		Industrial	, comme	rcial and	d consumer uses		
Life Cycle Description (Subca	tegory of Use):	Solvents (for clean	ing or d	legreasing)		
Physical Form:		vapor					
Route of Exposure:		Inhalation	n				
Exposure Concentration (Unit	t):	From 1.3	to 57.6 p	pm (pg	4 of 5)		
Number of Samples:		11					
Number of Sites:		1					
Worker Activity:					perator, shipper, cylinder cleaner, laboratory e, lunch room		
Number of Workers:		not specif	,	J	,		
Type of Sampling:		personal a					
Sampling Location:		see worke		,			
Exposure Duration:		not specified not specified					
Exposure Frequency:							
Engineering Control & percen	t Exposure Reduction:		nd cleani		elf cleaning filter to overcome the necessity of system, laboratory work should be done in the		
VALUATION							
Domain	Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability							
Metric 1:	Methodology	Medium	× 1	2	Data from manufacturer, who is also the author of the repor		
Domain 2: Representative							
Metric 2:	Geographic Scope	High	$\times 1$	1	Ohio - US		
Metric 3:	Applicability	High	$\times 2$	2	Use in scope		
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1982 and prior to most recent PE		
Metric 5:	Sample Size	Low	\times 1	3	characterized but no statistics.		
Domain 3: Accessibility/Clari							

				•	1 0				
Source Citation:	Olin, Cher PLANT.	Olin, Chemicals. 1982. ENVIRONMENTAL HYGIENE SURVEY OF THE BROOK PARK, OHIO OLIN CHEMICALS PLANT.							
Type of Data Source	Occupation	nal Exposure; Monitoring Dat	a:						
Hero ID	4213838	r rank to the G	,						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
	Metric 6:	Metadata Completeness	Low	× 1	3	Assessment or report provides results, but the underlying methods, data sources, and assumptions are not fully transparent.			
Domain 4: Varial	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	$\times 1$	3	No discussion of variability or uncertainty			
Overall Quality I	Determinatio	\mathbf{n}^{\dagger}	Medium		2.2				

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

,	RBIDITY STUDY OF OCCUPATIONAL EXPOSURE TO METHYLENE CHLORIDE RVEILLANCE SYSTERM (FINAL REPORT) WITH COVER LETTER DATED 073189.							
Type of Data Source Occupational Exposure; Monitorir 4213908								
EXTRACTION Parameter	Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use):	Processing Plastic Processing							
Physical Form: Route of Exposure:	vapor Inhalation							
Exposure Concentration (Unit):	Workers at a plastic polymer plant were grouped into four exposure groups (i.e., 49 ppm, 10.9 ppm, 3.3 ppm, and <1.0 ppm); see page 21 for specific job categories. The heat exchanges require filter changes every 6 hours; up to 150 ppm has been measured during this separation. Air concentrations from 1-8 ppm have been measured during the final extrusion process.							
Number of Samples:	$=65+56+29(pg\ 23\ of\ 95)$							
Number of Sites:	2							
Type of Measurement or Method:	most personal air samples were performed using a 3M organic vapor monitor #3500 personal dosimeter (pg 22 of 95).							
Worker Activity:	Several plants manufacure plastic polymers. Two of the plants use DMC. 1) BPA (bisphenol A) plant" Most occupational exposure occurs during sampling or maintenance and repair work. 2) Resin plant major exposures are around the centrifuges and heat exchanges.							
Number of Workers:	1,300 people were employed at several plastic polymer plants. 896 workers were included in an occupational exposure study.							
Type of Sampling: Exposure Duration:	personal and area We focused our analysis on a sampling duration of most of an entire 8- hr work day, calculated as an 8-hr TWA. Shorter-term monitoring often reflects a task-specific peak exposure.							
EVALUATION								
Domain Metric	Rating MWF* Score Comments							
Domain 1: Reliability Metric 1: Methodology	High $ imes 1$ method described and appears to be equivalent to NIOSH							
	Continued on next page							

Source Citation:						TONAL EXPOSURE TO METHYLENE CHLORIDE REPORT) WITH COVER LETTER DATED 073189.
Type of Data Source Hero ID		nal Exposure; Monitoring Data;	11(01) 515	i Dittii (I IIVIIL	TEL OILL) WITH COVER EDITER DATED OIGION.
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 2: Repres	sentative					
•	Metric 2:	Geographic Scope	High	$\times 1$	1	Indiana - US
	Metric 3:	Applicability	High	$\times 2$	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1989 and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	means given but no other statistics.
Domain 3: Access	sibility/Clar	ity				
	Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality D	eterminatio	${ m n}^{\dagger}$	Medium		2.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ource Citation: Vulcan, Chemicals. 1991. LETTER FROM HYGIENE MONITORING REPORT ON Occupational Exposure; Monitoring Data; 4213935	METHYLI			TO USEPA SUBMITTING ENCLOSED INDUSTRIAL E WITH ATTACHMENT.
XTRACTION	D 4			
Parameter	Data			
Life Cycle Stage:				d consumer uses
Life Cycle Description (Subcategory of Use):	Propellan			agents
Physical Form:	spray, vap		curing	
Route of Exposure:	Inhalation			
Exposure Concentration (Unit):			_	anged from 188 to 223 and the area sample
	TWA was	s 414 ppn	n (pg 4	of 7).
Number of Samples:	16			
Number of Sites:	1	,	11 .	
Type of Measurement or Method: Worker Activity:				d by charcoal tubes as an auxiliary blowing agent in the production
Number of Workers: Type of Sampling: Engineering Control & percent Exposure Reduction:	of flexible contol ope 3 personal a recommen	e foam slerator, fland area and area	abstock at top o redesig	the continuous continu
VALUATION				
Domain Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability				
Metric 1: Methodology	Medium	× 1	2	Described, but not named
Domain 2: Representative				
Metric 2: Geographic Scope	High	$\times 1$	1	North Carolina - US
Metric 3: Applicability	High	$\times 2$	$\overset{-}{2}$	Use in scope
Metric 4: Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1989 and prior to most recent PEL
Metric 5: Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity				

Source Citation:	,	Vulcan, Chemicals. 1991. LETTER FROM VULCAN CHEMICALS TO USEPA SUBMITTING ENCLOSED INDUSTRIAL HYGIENE MONITORING REPORT ON METHYLENE CHLORIDE WITH ATTACHMENT.						
Type of Data Source Hero ID	_	nal Exposure; Monitoring Data						
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
	Metric 6:	Metadata Completeness	Medium	× 1	2	missing sample durations but indicated as a full-shift TWA, other metadata given		
Domain 4: Variab	oility and Ur	ncertainty						
	Metric 7:	Metadata Completeness	Low	$\times 1$	3	No discussion of variability or uncertainty		
Overall Quality D)eterminatio	${f n}^{\dagger}$	Medium		1.9			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

hydrocarbons, gasoline, isooctane, hexane,						n, acetone, t-butyl alcohol, carbon tetrachloride, total ne.			
Type of Data Source Occupational Exposure; Monitoring Data; Hero ID 4213966									
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use):			es - Lab	oratory	d consumer uses chemicals - all other chemical product and				
Exposure Concentration (Unit):				og 24 of 6		shift results for DMC were less than detectable			
Number of Samples:			16	,					
Type of Measurement o	Met	chod:				s and through the use of 600 milligram charcoal			
			media and calibrated sampling pumps. Research lab staff						
Worker Activity:									
Type of Sampling:			personal						
PPE:			"" a recommendation has been made with regards to work practices"						
			_			ourage workers to wear appropriate personal			
			protective	equipme	ent (i.e.	, laboratory coats""			
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability									
Metr	c 1:	Methodology	Medium	× 1	2	Methodology described and appears to be equivalent to NIOSH/OSHA methods			
Domain 2: Representati	лe								
Domain 2: Representati Metr		Geographic Scope	High	× 1	1	US			
-	c 2:	Geographic Scope Applicability	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{1}{2}$	US Use in scope			
Metr	c 2:		_			Use in scope			
Metr Metr	c 2: c 3: c 4:	Applicability	High	\times 2	2	Use in scope			
Metr Metr Metr Metr	c 2: c 3: c 4: c 5:	Applicability Temporal Representativeness Sample Size	High Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	2 6	Use in scope More than 20 years old i.e., 1993 and prior to most recent PEL			
Metr Metr Metr	c 2: c 3: c 4: c 5:	Applicability Temporal Representativeness Sample Size	High Low	$\begin{array}{c} \times \ 2 \\ \times \ 2 \end{array}$	2 6	Use in scope More than 20 years old i.e., 1993 and prior to most recent PEL			
Metr Metr Metr Metr Domain 3: Accessibility	c 2: c 3: c 4: c 5: /Clar	Applicability Temporal Representativeness Sample Size rity Metadata Completeness	High Low High	× 2 × 2 × 1	2 6 1	Use in scope More than 20 years old i.e., 1993 and prior to most recent PEL discrete data given			

					1 6	
Source Citation:		c. 1993. I.h. monit. for peons, gasoline, isooctane, hexar				n, acetone, t-butyl alcohol, carbon tetrachloride, total ene.
Type of Data Source	Occupation	nal Exposure; Monitoring Dat	ta;			
Hero ID	4213966	, ,	,			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality I	Determination	${ m n}^{\dagger}$	Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

METHYLCHLO	METHYLCHLOROFORM BLENDED AE				ETHYLENE CHLORIDE/PERCHLOROETHYLENE/ERS.					
Type of Data Source Occupational Ex Hero ID 4213974	posure; Monitoring Data;									
EXTRACTION Parameter		Data								
Life Cycle Stage:			,		d consumer uses					
Life Cycle Description (Subcategory	Automoti									
Exposure Concentration (Unit): Number of Samples:		all exposu 28(pg 32		under	17 ppm					
Number of Sites:		20(pg 52)	01 30)							
Type of Measurement or Method:			3M charcoal monitoring badges (#3520 passive dosimeters)							
Worker Activity:			Break pad technicians using an aerosol brake cleaner were studied under normal use (formulations contained 5, 10, and 20 percent DMC with a balance of methylchloroform). The max. total DMC discharge was 655 grams per day or approximatly six 20 ounce cans of the 20 percent DMC.							
Number of Workers:		5Subjects	A throu	gh E						
Type of Sampling:		personal								
Engineering Control & percent Exp	osure Reduction:				re than 106 grams of methylene chloride should					
PPE:		recommen	ndations:	PPE	posure zone during one 15 minute period. recommendations such as the use of safety application is advised.					
EVALUATION										
Domain	Metric	Rating	MWF*	Score	Comments					
Domain 1: Reliability										
· ·	nodology	Medium	× 1	2	Data from manufacturer, who is also the author of the report					
Domain 2: Representative										
*	graphic Scope	High	× 1	1	USThe study was conducted at a single nationally franchised brake and muffler repair shop located in Wichita, Kansas.					
	icability	High	\times 2	2	Use in scope					
	poral Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1992 and 1993 and prior to most recent PEL					
Metric 5: Sam	ple Size	Low	× 1	3	characterized but no statistics.					

Source Citation:	,	hemicals. 1993. INDUSTRIA CHLOROFORM BLENDED				ETHYLENE CHLORIDE/PERCHLOROETHYLENE/ ERS.				
Type of Data Source Hero ID	Occupation 4213974	Occupational Exposure; Monitoring Data; 4213974								
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	Assessment or report provides results, but the underlying methods, data sources, and assumptions are not fully transparent.				
Domain 4: Variab	oility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality D	Determinatio	\mathbf{n}^{\dagger}	Medium		2.2					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

IN ROCK HILL, SC. Occupational Exposure; Monitoring Data; Hero ID 4214003 EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Exposure Concentration (Unit): Number of Sites: Worker Activity: Preparation and extrusion (spinning) areas.Focus is long term health impact. Number of Workers: 1,271 employees worked for at least 3-months in the extrusion department between 1954 and 1986. EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report Metric 3: Applicability Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeess Metric 4: Temporal Representativeess Metric 5: Sample Size Low × 2 6 More than 20 years old i.e., 1970 and prior to most recent P Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly	Source Citation:						SE CORP TO THE USEPA SUBMITTING PRELIM- G WORKERS AT CELRIVER TRIACETATE PLANT
Type of Data Source Hero ID EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Exposure Concentration (Unit): Number of Sites: Worker Activity: Number of Workers: Number of Workers: Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report Metric 4: Geographic Scope Metric 3: Applicability Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Domain 4: Variability and Uncertainty Metric 1: Methodology Metric 2: Geographic Scope Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully tra parent. Domain 4: Variability and Uncertainty				111 5100	'I REGA	INDINC	5 WORKERS AT CELRIVER TRIACETATE FLANT
Parameter Data		Occupatio					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): CTA manufacturing Exposure Concentration (Unit): Number of Sites: Worker Activity: Worker Activity: Number of Workers: Number of Sites: Number of	EXTRACTION						
Life Cycle Description (Subcategory of Use): Exposure Concentration (Unit): Number of Sites: 1 Worker Activity: Preparation and extrusion (spinning) areas. Focus is long term health impact. 1,271 employees worked for at least 3-months in the extrusion department between 1954 and 1986. EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report Metric 3: Applicability Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty	Parameter			Data			
Life Cycle Description (Subcategory of Use): Exposure Concentration (Unit): Number of Sites: 1 Worker Activity: Preparation and extrusion (spinning) areas. Focus is long term health impact. 1,271 employees worked for at least 3-months in the extrusion department between 1954 and 1986. EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report Metric 3: Applicability Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty	Life Cycle Stage:			Industrial	l. comme	rcial an	d consumer uses
Number of Sites: Worker Activity: Number of Workers: Number of Workers: Number of Workers: Number of Work		otion (Subca	ategory of Use):				
Worker Activity: Number of Workers: Number of Alexand Summits in the extrusion department of the representation of the repr	Exposure Concen	tration (Uni	it):	140 - 475	ppm fro	m a sur	vey in the late 1970s (pg 23 of 66)
Number of Workers: limpact. 1,271 employees worked for at least 3-months in the extrusion department between 1954 and 1986. EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 3: Accessibility / Clarity Metric 6: Metadata Completeness Domain 4: Variability and Uncertainty				1			
EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report of the rep	Worker Activity:			_	on and o	extrusio	n (spinning) areas. Focus is long term health
Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report of the r	Number of Worke	ers:					
Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report of the r	EVALUATION						
Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report Domain 2: Representative Metric 2: Geographic Scope High × 1 1 Rock Hill, North Carolina - US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1970 and prior to most recent P Metric 5: Sample Size Low × 1 3 characterized but no statistics. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty	Domain		Metric	Rating	MWF^{\star}	Score	Comments
Metric 1: Methodology Medium × 1 2 Data from manufacturer, who is also the author of the report Domain 2: Representative Metric 2: Geographic Scope High × 1 1 Rock Hill, North Carolina - US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1970 and prior to most recent P Metric 5: Sample Size Low × 1 3 characterized but no statistics. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty	Domain 1. Daliah	:1:4					
Metric 2: Geographic Scope Metric 3: Applicability High × 1 1 Rock Hill, North Carolina - US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1970 and prior to most recent P Metric 5: Sample Size Low × 1 3 characterized but no statistics. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully tra parent. Domain 4: Variability and Uncertainty	Domain 1. Renad		Methodology	Medium	× 1	2	Data from manufacturer, who is also the author of the report
Metric 2: Geographic Scope Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1970 and prior to most recent P Metric 5: Sample Size Low × 1 3 characterized but no statistics. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully tra parent. Domain 4: Variability and Uncertainty	Domain 2: Repres	sentative					
Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1970 and prior to most recent P Metric 5: Sample Size Low × 1 3 characterized but no statistics. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully tra parent. Domain 4: Variability and Uncertainty			Geographic Scope	High	$\times 1$	1	Rock Hill, North Carolina - US
Metric 5: Sample Size Low × 1 3 characterized but no statistics. Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty		Metric 3:			$\times 2$	2	Use in scope
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty		Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1970 and prior to most recent PEL
Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty		Metric 5:	Sample Size	Low	× 1	3	characterized but no statistics.
Metric 6: Metadata Completeness Low × 1 3 Assessment or report provides results, but the underly methods, data sources, and assumptions are not fully traparent. Domain 4: Variability and Uncertainty	Domain 3: Access	sibility/Clar	ity				
· · ·	Domain of Treedox	٠,		Low	× 1	3	Assessment or report provides results, but the underlying methods, data sources, and assumptions are not fully transparent.
· · ·	Domain A. Varial	vility and II	ngartainty				
	Domain 4. variat		•	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination † Medium 2.2	Overall Quality D	Determinatio	\mathbf{m}^{\dagger}	Medium		2.2	
Continued on next page		,			novt no		

	C	•	
 continued 	from	previous	page

Source Citation:	, -				RP TO THE USEPA SUBMITTING PRELIM- RKERS AT CELRIVER TRIACETATE PLANT
Type of Data Source Hero ID	Occupational Exposure; Monitoring Da 4214003	ta;			
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1985. OCCUPATIONAL EXE E CONTRACT NO 68-02-3935.		AND EN	VIRON	NMENTAL RELEASE ASSESSMENT OF METHYLENE		
Type of Data Source Oc	rpe of Data Source Occupational Exposure; Monitoring Data;							
EXTRACTION Parameter			Data					
Life Cycle Stage:	(0.1		Manufa					
Life Cycle Description	n (Subca	tegory of Use):		ic manuf	acturing	g		
Physical Form: Route of Exposure:				apor				
				ion	C	10 6 +- 12 050		
Exposure Concentration (Unit): Number of Sites:				tea expo	sure iro	m 12.6 to 13,950 ppm		
Number of Sites: Type of Measurement or Method:				tod: accu	mptions	s include flowrate and area.		
Type of Measurement or Method: Worker Activity:						4 operations: 1) drum filling, 2) tank filling, 3)		
worker Activity:						tap sampling.		
Number of Workers:			1200pg 181 of 201					
			10					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
D D								
Domain 1: Reliability		M-41 1-1	TT:l.	v. 1	1	IIG PDA		
1/16	etric 1:	Methodology	High	× 1	1	US EPA		
Domain 2: Represent	ative							
•	etric 2:	Geographic Scope	High	\times 1	1	US		
Me	etric 3:	Applicability	High	$\times 2$	2	Use in scope		
$M\epsilon$	etric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1985 and prior to most recent PEL		
Me	etric 5:	Sample Size	High	\times 1	1	Discrete samples given in appendix		
	/ 67							
Domain 3: Accessibili	٠,	·	TT: 1					
Me	etric 6:	Metadata Completeness	High	× 1	1	fully transparent.		
Domain 4: Variability	v and Ur	ocertainty						
•	etric 7:	Metadata Completeness	High	× 1	1	discussion of variability or uncertainty		
		F	0	<u> </u>		and the second s		
Overall Quality Deter	rminatio	n [†]	High		1.4			
C TOTALL SCHOOL DOLL		••			1.1			
• •								
			tinued or					

II E D A 100K OCCUPATIONAL	PAROGUEE	AND DAILUD ON ADAIL	BAL DELEAGE AGGEGGMENT OF METHALENI
,		AND ENVIRONMENT	TAL RELEASE ASSESSMENT OF METHYLENE
4214063	,		
Metric	Rating	MWF [⋆] Score	Comments
	CHLORIDE CONTRACT NO 68-02- Occupational Exposure; Monitoring D 4214063	CHLORIDE CONTRACT NO 68-02-3935. Occupational Exposure; Monitoring Data; 4214063	Occupational Exposure; Monitoring Data; 4214063

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	,	1985. OCCUPATIONAL EXE DE CONTRACT NO 68-02-3935.		AND EN	VIRON	IMENTAL RELEASE ASSESSMENT OF METHYLEN
ype of Data Source (nal Exposure; Monitoring Data;	•			
XTRACTION						
Parameter			Data			
Life Cycle Stage: Life Cycle Descripti	ion (Subca	ategory of Use):		aging - S		(which become part of product formulation or nemical product and preparation manufacturing
Physical Form:			spray, v	,	ounce of	ionical product and proparation manaracturing
Route of Exposure:			Inhalati	-		
Exposure Concentration (Unit):					sure fro	om 101 to 1,890 with a geometric mean of 317
Number of Samples Number of Sites: Type of Measureme Worker Activity: Number of Workers	ent or Metl	hod:	112 calculat	ed: 10 pa	(2	g 104) packerstable 2-3 (pg 24 of 201)
VALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
	ity		TT: 1			
Domain 1: Reliabili	·		High	$\times 1$	1	US EPA
	Metric 1:	Methodology	High			UD ELA
	Metric 1:	Methodology	IIIgii			US DI A
Domain 2: Represe	Metric 1:	Methodology Geographic Scope	High	× 1	1	US
Domain 2: Represe	Metric 1:				1 2	
Domain 2: Represer	Metric 1: ntative Metric 2:	Geographic Scope	High	× 1		US Use in scope
Domain 2: Represer	Metric 1: ntative Metric 2: Metric 3:	Geographic Scope Applicability	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	2	US Use in scope
Domain 2: Represer	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	2 6	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PE
Domain 2: Represer	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	2 6	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PE
Domain 2: Represer	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5: Dility/Clari Metric 6:	Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	High High Low High	× 1 × 2 × 2 × 1	2 6 1	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PE Discrete samples given in appendix
Domain 2: Represer Domain 3: Accessib	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5: Dility/Clari Metric 6:	Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	High High Low High	× 1 × 2 × 2 × 1	2 6 1	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PE Discrete samples given in appendix

	Continu	cu ii oiii	previo	us page	
Source Citation:	Us, E. P. A 1985. OCCUPATIONAL EXP CHLORIDE CONTRACT NO 68-02-3935.	OSURE .	AND EN	VIRONI	MENTAL RELEASE ASSESSMENT OF METHYLENE
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4214063				
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Overall Quality D	Petermination [†]	High		1.4	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1985. OCCUPATIONAL EXI E CONTRACT NO 68-02-3935		AND EN	IVIRON	MENTAL RELEASE ASSESSMENT OF METHYLEN		
ype of Data Source O		nal Exposure; Monitoring Data;						
XTRACTION	-							
Parameter			Data					
Life Cycle Stage:			Industri	ial, com	nercial a	and consumer uses		
Life Cycle Description (Subcategory of Use):			Solvents	s (for cle	aning or	degreasing) - Aerosol spray degreaser/cleaner		
Physical Form:				apor				
Route of Exposure:				on				
Exposure Concentration (Unit):				ted expo ob catego		m 7 to 270 with a geometric mean of 51 mg/m3		
Type of Measuremen	nt or Met	hod:	calculat		ories.			
Worker Activity:					ated for	3 job categories: 1) spray painter, 2) mold		
Worker Receiving.						rker.table 2-5 (pg 27 of 201)		
Number of Workers:			14,296 spray painters, 25,972 mold release, and 50,343 other					
			worker.	Table 3-2	2 (pg 89	of 201)		
VALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliability	V							
•	letric 1:	Methodology	High	× 1	1	US EPA		
Domain 2: Represent	tativo							
-	letric 2:	Geographic Scope	High	× 1	1	US		
	letric 3:	Applicability	High	$\times 2$	2	Use in scope		
	letric 4:	Temporal Representativeness	Low	\times 2	6	More than 20 years old i.e., 1985 and prior to most recent PEI		
M	Metric 5: Sample Size			\times 1	1	Discrete samples given in appendix		
	letric 5:	Sample Size	High					
M		-						
Domain 3: Accessibil		-	High	× 1	1	fully transparent.		
Domain 3: Accessibil	lity/Clari Ietric 6:	ity Metadata Completeness		× 1	1	fully transparent.		
Domain 3: Accessibil M Domain 4: Variabilit	lity/Clari letric 6:	ity Metadata Completeness ncertainty	High					
Domain 3: Accessibil M Domain 4: Variabilit	lity/Clari letric 6:	ity Metadata Completeness		× 1 × 1	1	fully transparent. discussion of variability or uncertainty		

Source Citation:	,	85. OCCUPATIONAL ONTRACT NO 68-02-		AND EN	VIRONMENT.	AL RELEASE ASSESSMENT OF METHYLENE
Type of Data Source Hero ID	Occupational Ex	xposure; Monitoring I	Oata;			
EVALUATION	4214003					
Domain		Metric	Rating	MWF^{\star}	Score	Comments

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

CHLORI	A 1985. OCCUPATIONAL EXI DE CONTRACT NO 68-02-3935 onal Exposure; Monitoring Data;		AND EN	IVIRON	IMENTAL RELEASE ASSESSMENT OF METHYLEN			
ero ID 4214063	1							
XTRACTION								
Parameter		Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use):			,	ngs incl	and consumer uses uding paint and coating removers for commercial			
Physical Form:			apor	Ü				
Route of Exposure:			ion					
Exposure Concentration (Unit):			ted expo		m 7 to 3,897 with a geometric mean of 106 mg/s.			
Number of Samples:					ppers, 20 water wash, 6 other(pg 104)			
Number of Sites:								
Type of Measurement or Method:			calculated					
Worker Activity:		Exposure calculated for 3 job categories: 1) spray painter, 2) water						
					xer.table 2-8 (pg 33 of 201)			
Number of Workers:		per plant: 6 paint strippers, 20 water wash, 3 other						
VALUATION								
Domain	Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability								
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	US EPA			
Metric 1:	Methodology	High	× 1	1	US EPA			
· ·	- Cu	High High	× 1 × 1	1	US EPA US			
Metric 1: Domain 2: Representative	Geographic Scope							
Metric 1: Domain 2: Representative Metric 2:	Geographic Scope Applicability	High	× 1	1	us			
Domain 2: Representative Metric 2: Metric 3:	Geographic Scope Applicability Temporal Representativeness	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	1 2	US Use in scope			
Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	1 2 6	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PEL			
Domain 2: Representative Metric 2: Metric 3: Metric 4:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \end{array}$	1 2 6	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PEL			
Metric 1: Domain 2: Representative Metric 2: Metric 3: Metric 4: Metric 5: Domain 3: Accessibility/Cla	Geographic Scope Applicability Temporal Representativeness Sample Size rity Metadata Completeness	High High Low High	× 1 × 2 × 2 × 1	1 2 6 1	US Use in scope More than 20 years old i.e., 1985 and prior to most recent PEL Discrete samples given in appendix			

				1 6	
Source Citation:	Us, E. P. A 1985. OCCUPATIONAL EXI CHLORIDE CONTRACT NO 68-02-3935		AND EN	VIRONM	MENTAL RELEASE ASSESSMENT OF METHYLENE
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4214063				
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Overall Quality I	${\rm Petermination}^{\dagger}$	High		1.4	

 $[\]star$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

ource Citation:	,	1985. OCCUPATIONAL EXI E CONTRACT NO 68-02-3935		AND EN	IVIRON	NMENTAL RELEASE ASSESSMENT OF METHYLEN		
Type of Data Source Hero ID	Occupation 4214063	nal Exposure; Monitoring Data;						
EXTRACTION								
Parameter			Data					
Life Cycle Stage:						and consumer uses		
Life Cycle Description (Subcategory of Use):				ants and	blowing	g agents		
Physical Form:			spray, v	_				
Route of Exposure: Exposure Concentration (Unit): Number of Samples:			Inhalati					
						m 7 to 249 with a geometric mean of 74 mg/m3		
				ob catego				
				ed: 18 fo	am opei	rator, 18 other(pg 104)		
Number of Sites:	. 36.0	1 1	81					
Type of Measurem	nent or Met	hod:	calculat		. 1.6	2.1		
Worker Activity:			Exposure calculated for 2 job categories: 1) foam operator and 2) other worker.table 2-11 (pg 41 of 201)					
Number of Worker						tor, 4 other		
Number of Worker	15.		per piai	nt. 5 10ai	ш орега	uoi, 4 other		
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabi	ility							
Domain 1. Itemasi	Metric 1:	Methodology	High	× 1	1	US EPA		
Domain 2: Repres	entative							
	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Use in scope		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	More than 20 years old i.e., 1985 and prior to most recent PEI		
	Metric 5:	Sample Size	High	× 1	1	Discrete samples given in appendix		
	ibility/Class	itaz						
Domain 3. Accord	٠,	Metadata Completeness	High	\times 1	1	fully transparent.		
Domain 3: Accessi	Metric 6:	Wetadata Completeness						
Domain 4: Variab			High	× 1	1	discussion of variability or uncertainty		

	Continue		previo	as page	
Source Citation:	Us, E. P. A 1985. OCCUPATIONAL EXP CHLORIDE CONTRACT NO 68-02-3935.	OSURE A	AND EN	VIRONM	ENTAL RELEASE ASSESSMENT OF METHYLENE
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4214063				
EVALUATION					
Domain	Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments
Overall Quality I	Determination [†]	High		1.4	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Pl Metric 5: Sample Size High × 1 1 discrete data given Domain 3: Accessibility/Clarity	Source Citation:	HOL, CA					ER, CHLOROFORM, ACETONE, T-BUTYL ALCO-GASOLINE, ISOOCTANE, HEXANE, METHYLENE			
Parameter	· ·	-	nal Exposure; Completed Expos	ure or Risk	Assessm	ents;				
Life Cycle Description (Subcategory of Use): Laboratory chemicals for all other chemical product and preparation menufacturing Physical Form: Fumes Inhalation				Data						
Physical Form: Route of Exposure: Inhalation Exposure Concentration (Unit): Symmetry of Samples: Type of Measurement or Method: Worker Activity: Worker Activity: Type of Sampling: Sampling Location: Exposure Duration: EVALUATION Domain 1: Reliability Metric 1: Methodology Medium Metric 2: Methodology Medium Medium Metric 3: Medium Med	Life Cycle Stage:			Processin	g					
Route of Exposure: Inhalation Supplies S	Life Cycle Description (Subcategory of Use):				•	cals for	all other chemical product and preparation			
Exposure Concentration (Unit):	Physical Form:				Ü					
Number of Samples: Number of Sites: 1 Type of Measurement or Method: Worker Activity: Type of Sampling: Sampling Location: Exposure Duration: Domain 1: Reliability Metric 1: Methodology Metric 2: Methodology Metric 3: Applicability Metric 4: Temporal Representativeness Metric 4: Temporal Representativeness Metric 5: Sample Size Methodology Medium Metric 1: Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 3: Applicability Metric 4: Temporal Representativeness Low X 2 Bomein Scope Metric 4: Temporal Representativeness Metric 5: Sample Size Methodology Medium X 1 1 US Methodology described and appears to be equivalent NIOSH/OSHA methods NIOSH/OSHA methods More than 20 years old i.e., 1993 and prior to most recent Plance of the polymore of the polymor	Route of Exposure	Inhalation	ı							
Number of Sites: Type of Measurement or Method: Graphic Sampling: Sampling Location: Exposure Duration: Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Metric 5: Sample Size Intellability Intellability Metric 6: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity	Exposure Concent	Exposure Concentration (Unit): Number of Samples:								
Type of Measurement or Method: Worker Activity: Worker Activity: Open column chromatography, composition, spectral and infrared analysis, liquid chromatography, washing glassware personal Exposure Duration: EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity	Number of Sample									
Worker Activity: Open column chromatography, composition, spectral and infrared analysis, liquid chromatography, washing glassware Type of Sampling: Sampling Location: Exposure Duration: Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity	Number of Sites:									
Type of Sampling: Sampling Location: Exposure Duration: Bevaluation Domain 1: Reliability Metric 1: Methodology Medium Metric 2: Metric 3: Metric 3: Metric 3: Applicability Metric 4: Temporal Representative Metric 4: Temporal Representative Metric 4: Metric 5: Sample Size Medium	Type of Measurement or Method:			full-shift						
Type of Sampling: Sampling Location: Exposure Duration: Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 3: Applicability Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity	Worker Activity:				Open column chromatography, composition, spectral and infrared anal-					
Sampling Location: Exposure Duration: Lab				ysis, liqui	d chroma	itograpl	hy, washing glassware			
EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Plant Metric 5: Sample Size Domain 3: Accessibility/Clarity				1						
EVALUATION Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Metric 5: Sample Size										
Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity	Exposure Duration	n:		420-465 n	nin					
Domain 1: Reliability Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High × 1 1 US Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Plantic 5: Sample Size Domain 3: Accessibility/Clarity	EVALUATION									
Metric 1: Methodology Medium × 1 2 Methodology described and appears to be equivalent NIOSH/OSHA methods Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Planting Metric 5: Sample Size High × 1 1 discrete data given Domain 3: Accessibility/Clarity	Domain		Metric	Rating	MWF*	Score	Comments			
Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Pl Metric 5: Sample Size High × 1 1 discrete data given Domain 3: Accessibility/Clarity	Domain 1: Reliab	ility								
Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Pl Metric 5: Sample Size High × 1 1 discrete data given Domain 3: Accessibility/Clarity		Metric 1:	Methodology	Medium	× 1	2	Methodology described and appears to be equivalent to NIOSH/OSHA methods			
Metric 3: Applicability High × 2 2 Use in scope Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Pl Metric 5: Sample Size High × 1 1 discrete data given Domain 3: Accessibility/Clarity	Domain 2: Repres	sentative								
Metric 4: Temporal Representativeness Low × 2 6 More than 20 years old i.e., 1993 and prior to most recent Planetric 5: Sample Size High × 1 1 discrete data given Domain 3: Accessibility/Clarity		Metric 2:	Geographic Scope	High	$\times 1$	1	US			
Metric 5: Sample Size High \times 1 1 discrete data given Domain 3: Accessibility/Clarity		Metric 3:		_		2	Use in scope			
Domain 3: Accessibility/Clarity		Metric 4:			$\times 2$	6	More than 20 years old i.e., 1993 and prior to most recent PEL			
		Metric 5:	Sample Size	High	× 1	1	discrete data given			
	Domain 3: Access	ibility/Clar	ity							
		Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration			
Continued on next page										

Texaco, Inc. 1993. I.H. MONIT. FOR PENTANE, ETHYL ETHER, CHLOROFORM, ACETONE, T-BUTYL ALCOHOL, CARBON TETRACHLORIDE, TOTAL HYDROCARBONS, GASOLINE, ISOOCTANE, HEXANE, METHYLENE CHLORIDE & TOLUENE.								
Occupation 4215915								
	Metric	Rating	MWF^{\star}	Score	Comments			
ility and Un	certainty							
Metric 7:	Metadata Completeness	Low	$\times 1$	3	No discussion of variability or uncertainty			
etermination	\mathbf{n}^{\dagger}	Medium		1.9				
	HOL, CAR CHLORID Occupation 4215915	HOL, CARBON TETRACHLORIDE, TO CHLORIDE & TOLUENE. Occupational Exposure; Completed Exposure; Metric	HOL, CARBON TETRACHLORIDE, TOTAL HYD CHLORIDE & TOLUENE. Occupational Exposure; Completed Exposure or Risk 4215915 Metric Rating Sility and Uncertainty Metric 7: Metadata Completeness Low	HOL, CARBON TETRACHLORIDE, TOTAL HYDROCARI CHLORIDE & TOLUENE. Occupational Exposure; Completed Exposure or Risk Assessm 4215915 Metric Rating MWF* bility and Uncertainty Metric 7: Metadata Completeness Low × 1	HOL, CARBON TETRACHLORIDE, TOTAL HYDROCARBONS, CHLORIDE & TOLUENE. Occupational Exposure; Completed Exposure or Risk Assessments; 4215915 Metric Rating MWF* Score sility and Uncertainty Metric 7: Metadata Completeness Low × 1 3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	General Ei 090688.	lectric, Co. 1988. Health and	Safety Stud	lies on M	ethylen	e Chloride with Attachments and Cover Letter Dated		
vpe of Data Source (nal Exposure; Completed Expos	ure or Risk	Assessm	ents;			
XTRACTION								
Parameter			Data					
Life Cycle Stage:			Processin	g				
Life Cycle Description (Subcategory of Use):			Processin	g as a rea	actant			
Route of Exposure:			Inhalation	n				
Exposure Concentration (Unit):					0.038 m	g/l0.062 mg/l0.078 mg/l0.177 mg/l0.198 mg/		
Number of Samples			10.270 mg 10	5/1				
Number of Samples: Number of Sites:			10					
Type of Measureme	ent or Met	hod:	full-shift					
Number of Workers:			10					
Type of Sampling:			personal	blood lev	els befo	ere and after exposure		
Sampling Location:		Control room, Resin workup, dryer and extruder, material and reactor						
1 0			feeds, end cap					
			feeds, end	l cap				
			feeds, end	l cap				
VALUATION								
VALUATION Domain		Metric	feeds, end	l cap	Score	Comments		
Domain	itv	Metric			Score	Comments		
Domain Domain 1: Reliabili	ity Metric 1:	Metric Methodology			Score 1	Comments Information is from trusted sources		
Domain Domain 1: Reliabili	Metric 1:		Rating	MWF*				
Domain 1: Reliabili	Metric 1:	Methodology	Rating High	MWF*	1	Information is from trusted sources		
Domain 1: Reliabiling Market Domain 2: Represer	Metric 1: ntative Metric 2:	Methodology Geographic Scope	Rating	MWF* × 1 × 1		Information is from trusted sources US		
Domain 1: Reliabili Domain 2: Represer	Metric 1:	Methodology Geographic Scope Applicability	Rating High	MWF*	1	Information is from trusted sources		
Domain 1: Reliabili Domain 2: Represer	Metric 1: ntative Metric 2: Metric 3:	Methodology Geographic Scope	Rating High High Medium	$\begin{array}{c} \text{MWF}^{\star} \\ \times 1 \\ \times 1 \\ \times 2 \end{array}$	1 1 4	Information is from trusted sources US Likely within scope		
Domain 1: Reliabili Domain 2: Represer	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	Rating High High Medium Low	MWF* × 1 × 1 × 2 × 2	1 1 4 6	Information is from trusted sources US Likely within scope 1988		
Domain 1: Reliabilia M Domain 2: Represer M M Domain 3: Accessib	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size	Rating High High Medium Low	MWF* × 1 × 1 × 2 × 2	1 1 4 6	US Likely within scope 1988 Distribution characterized by no statistics.		
Domain 1: Reliabilia M Domain 2: Represer M M Domain 3: Accessib	Metric 1: ntative Metric 2: Metric 3: Metric 4: Metric 5: Dility/Clar. Metric 6:	Methodology Geographic Scope Applicability Temporal Representativeness Sample Size ity Metadata Completeness	Rating High High Medium Low Low	MWF* × 1 × 1 × 2 × 2 × 1	1 1 4 6 3	US Likely within scope 1988 Distribution characterized by no statistics. Assessment or report clearly documents its data sources, as		

		commuca nom p	revious	page				
Source Citation:	General Electric, Co. 1988. Health and Safety Studies on Methylene Chloride with Attachments and Cover Letter Dated 090688.							
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;							
Hero ID	4442312							
EVALUATION								
Domain	Metri	c Rating	MWF*	Score	Comments			
Overall Quality I	Determination [†]	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Halogenated Solvents Industry Alliance, Inc. 2018. Comment letter of Halogenated Solvents Industry Alliance, Inc. (HSIA) egarding Docket ID No. EPA-HQ-OPPT-2016-0742-0103. Personal Communication.						
Type of Data Source Hero ID	Occupation 5042167	Occupational Exposure; Monitoring Data; 5042167						
EXTRACTION Parameter			Data					
Life Cycle Stage:		Mfg, Proc-Rxn, Plastcs						
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	ility							
Bonian 1. Itolias	Metric 1:	Methodology	Low	× 1	3	Methods not specified		
Domain 2: Repres	sentative							
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US facilities		
	Metric 3:	Applicability	High	$\times 2$	2	Directy industrial scenarios		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	most within the last 10 years		
	Metric 5:	Sample Size	High	× 1	1	Individual data points		
Domain 3: Access	ibility/Clari	itv						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration		
Domain 4: Variab	ility and IIv	ocortainty.						
Domain 4. Variati	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.		
Overall Quality D	eterminatio	${ m n}^{\dagger}$	High		1.6			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Finkel, A.1 Communic		am M. Fin	kel regar	ding Do	ocket ID No. EPA-HQ-OPPT-2016-0231-0536. Personal
Type of Data Source		nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descripti	ion (Subca	ategory of Use):	Spot Clea	ning		
Route of Exposure:			inhalation	1		
Exposure Concentra		t):	0-88.7			
Number of Samples			6			
Type of Measureme	ent or Met	hod:	TWA			
Worker Activity:				- industi	rial laun	iderer sites
Type of Sampling:			personal			
Exposure Duration:			various			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabili	itv					
	Metric 1:	Methodology	High	× 1	1	data collected by OSHA, assumed ot use OSHA methods
Domain 2: Represen	ntative					
	Metric 2:	Geographic Scope	High	$\times 1$	1	US data
	Metric 3:	Applicability	Medium	$\times 2$	4	Use in scope
I	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1985/1997, prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessib	oility/Clari	itv				
	Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variabili	ity and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Det	terminatio	n [†]	Medium		2.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	nkel, A.N		am M. Fin	kel regar	ding Do	cket ID No. EPA-HQ-OPPT-2016-0231-0536. Personal
Type of Data Source Oc		ation. nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description	n (Subca	tegory of Use):	Spot Clea	ning		
Route of Exposure:			inhalation	1		
Exposure Concentrat	ion (Uni	t):	0-88.7			
Number of Samples:			6			
Type of Measuremen	t or Metl	nod:	TWA			
Worker Activity:				- industi	rial laun	iderer sites
Type of Sampling:			personal			
Exposure Duration:			various			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability	V					
· ·	etric 1:	Methodology	High	× 1	1	data collected by OSHA, assumed ot use OSHA methods
Domain 2: Represent	ative					
	etric 2:	Geographic Scope	High	$\times 1$	1	US data
	etric 3:	Applicability	Medium	$\times 2$	4	Use in scope
M	etric 4:	Temporal Representativeness	Medium	$\times 2$	4	2003 and after most recent PEL
M	etric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibil	itv/Clari	t.v				
	etric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability	v and Un	cortainty				
	etric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Deter	rminatio	n [†]	Medium		1.8	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source O	International Programme on Chemical Safet. 1996. Environmental Health Criteria 164. Methylene Chloride Second Editio Occupational Exposure; Completed Exposure or Risk Assessments; 5071459							
EXTRACTION Parameter			Data					
Farameter			Data					
Life Cycle Stage:			Use					
Life Cycle Description	on (Subca	tegory of Use):	Polyureth	ane Foar	n Blowi	ng		
Physical Form:	`	,	vapor					
Route of Exposure:			inhalation	ı				
Exposure Concentrate	tion (Uni	t):	7.1 - 1,090	0				
Number of Samples:			unknown					
Number of Sites:			unknown					
Type of Measuremen	nt or Met	nod:	TWA					
Worker Activity:			Moulding	, unknow	n, vario	ous jobs		
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabilit	v							
	Tetric 1:	Methodology	Low	× 1	3	Not Specified		
Domain 2: Represen	tative							
N	Ietric 2:	Geographic Scope	Medium	$\times 1$	2	World Health Organization		
N	letric 3:	Applicability	High	$\times 2$	2	Foam Blowing		
N	Ietric 4:	Temporal Representativeness	Low	$\times 2$	6	1987 through 1992, prior to PEL		
N	Ietric 5:	Sample Size	Medium	× 1	2	range given		
Domain 3: Accessibi	lity/Clari	tv						
	Ietric 6:	Metadata Completeness	Low	× 1	3	Type of measurement given, no other metadata provided		
Domain 4: Variabilit	wand Un	cortainty						
	ly and On letric 7:	Metadata Completeness	Low	× 1	3	Not discussed.		
17.	ICUITC 7.	Wichadata Completeness	LOW	^ 1	<u>.</u>	NOT HISTOSEU.		
Overall Quality Dete	ermination	a^{\dagger}	Low		2.3			
					-			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	OSHA. 2019. Dichloromethane Sampling Results, 2012-2016. Occupational Exposure; Monitoring Data; 5079093					
EXTRACTION Parameter			Data			
Life Cycle Stage:			Various			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
Bolliam 1. Iteliab	Metric 1:	Methodology	High	× 1	1	Assumed that OSHA used OSHA-approved methods
Domain 2: Repres	sentative					
Bomain 2. Ropros	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Covers various industries directly related to scope
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2013-2016
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Access	ibility/Clar	itv				
	Metric 6:	Metadata Completeness	Medium	× 1	2	sample times seem incorrect
Domain 4: Variab	ility and U	ncertainty				
Domain 4. Variab	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination [†]			High		1.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ndustrial Hygiene (DOEHRS-IH). 2018. Email between
		n. U.S. Department of Defense.	pdate: Do	D exposu	ire data	a for EPA risk evaluation - EPA request for additional
Type of Data Source		n. U.S. Department of Defense. nal Exposure; Monitoring Data;				
Hero ID	5178607	nai Exposure, Monitoring Data,				
	3173007					
EXTRACTION			ъ.			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	ption (Subca	ategory of Use):	Laborato	ry		
Exposure Concen			mg/m3			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1. Daliah	:1:4					
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	NIOSH Method
	Medic 1.	Wethodology	Iligii	× 1	1	NIOSH Method
Domain 2: Repres	sentative					
Bomain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	DOD
	Metric 3:	Applicability	High	$\times 2$	2	Laboratory
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	pre 2016
	Metric 5:	Sample Size	High	\times 1	1	Individual data points
D : 9 A	:1:1:4 /61	•,				
Domain 3: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	
	metric o.	Metadata Completeness	Medium	× 1	2	personal samples - sample times given; shift duration data is spotty
D				<u> </u>		
Domain 4: Variab						
	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Original Original) at ammain a t : -	†	II: mb		1.3	
Overall Quality D	etermmatio	11.	High		1.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	DOD and					industrial Hygiene (DOEHRS-IH). 2018. Email between a for EPA risk evaluation - EPA request for additional
Type of Data Source Hero ID		nal Exposure; Monitoring Data;				
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip			Paints an	d Coatin	gs	
Exposure Concent	tration (Uni	t):	mg/m3			
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	ilita					
	Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	\times 1	1	DOD
	Metric 3:	Applicability	High	$\times 2$	2	Paints and Coatings
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2016
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Access	sibility/Clari	ity				
Domain 9. Necesi	Metric 6:	Metadata Completeness	Medium	× 1	2	personal samples - sample times given; shift duration data is spotty
Domain 4. V:-1	ilitar and II-	- containte				
Domain 4: Variab	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination †			High		1.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						ndustrial Hygiene (DOEHRS-IH). 2018. Email between
			pdate: Do	D exposu	ire data	a for EPA risk evaluation - EPA request for additional
Type of Data Source		n. U.S. Department of Defense. nal Exposure; Monitoring Data;				
Hero ID	5178607	nai Exposure; Monitoring Data;				
	3176007					
EXTRACTION			_			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	ption (Subca	ategory of Use):	Waste Ha	andling		
Exposure Concen			mg/m3	Ü		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	sili+v					
Domain 1: Renau	Metric 1:	Methodology	High	× 1	1	NIOSH Method
	Wicuite 1.	Wiedlodology	111611	/\ I		MODII Method
Domain 2: Repres	sentative					
	Metric 2:	Geographic Scope	High	$\times 1$	1	DOD
	Metric 3:	Applicability	High	$\times 2$	2	Waste Handling
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2017
	Metric 5:	Sample Size	High	\times 1	1	Individual data points
Domain 3: Access	sibility/Clan	i+				
Domain 5: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	personal samples - sample times given; shift duration data is
						spotty
Domain 4: Varial	oility and II	ncertainty				
Domain 4. Variat	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
						The state of the s
Overall Quality D) eterminatio	\mathbf{n}^{\dagger}	High		1.3	
O torain againty E			-11-9-1		1.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Evaluation	Bernstein, A 2017. Arkema Inc. Comments to Inform EPA's Rulemaking on the Problem Formulations for the Risk Evaluations for Certain of the First Ten Chemical Substances under the Lautenberg Chemical Safety Act (LCSA). EPA-HQ-OPPT-2016-0742-0079.							
Type of Data Source	Occupation	nal Exposure; Monitoring Data;							
Hero ID	5355369	,							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Prox-Rxn						
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliab	Domain 1: Reliability								
	Metric 1:	Methodology	Low	× 1	3	Unknown method			
Domain 2: Repres	entative								
Domain 2. Repres	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	× 2	2	Processing as a reactant			
	Metric 4:	Temporal Representativeness	High	× 2	$\overline{2}$	2017			
	Metric 5:	Sample Size	Medium	\times 1	2	average provided			
Domain 3: Access	ibility/Clari	ity							
	Metric 6:	Metadata Completeness	Low	\times 1	3	personal samples			
Domain 4: Variab	ility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	Uncertainty and variability not discussed			
Overall Quality Determination †		Medium		1.8					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Organic Chemical Manufacturer US EPA: RE: Draft Risk Evalua				from Synthetic Organic Chemical Manufacturers Asso-
Type of Data Source Hero ID	Occupation 6311555	nal Exposure; Monitoring Data;		Ü		
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Pharmace	entical M	anufact	uring
Exposure Concern			mg/m3	Januar IVI	arrarace	our mg
Number of Sampl		/-	24			
Number of Sites:			1			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	Low	\times 1	3	Unknown method
Domain 2: Repres	sontativo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	unspecified but SOCMA member
	Metric 3:	Applicability	High	$\times 2$	2	Pharmaceutical Manufacturing
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	SOCMA indicates current manufacturing practices
	Metric 5:	Sample Size	Medium	$\times 1$	2	only central tendency and high end are provided
Domain 3: Access	sibility:/Clam	:+				
Domain 5. Access	Metric 6:	Metadata Completeness	Low	× 1	3	personal samples - no worker activities specified
	1.100110 0.	Trocadura Comproveness	2011	/\ <u>+</u>		personal samples in worker detivities specified
Domain 4: Variab	oility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination [†]		Medium		1.8		
Overall equality D			modram		1.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Facility

Source Citation: Type of Data Source Hero ID	2017. Chemical data reporting: Dichloro-methane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3860459								
EXTRACTION			- .						
Parameter			Data						
Life Cycle Stage:			Manufact	ure/Impo	ort				
Life Cycle Descrip	tion (Subca	ategory of Use):	Manufact	ure/Impo	ort of D	OCM			
	. Volume (a	nd percent of PV):	261,469,8	, .					
Number of Sites:			12 (some	CBI)					
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	EPA Source			
Domain 2: Repres	entative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture/Import of DCM			
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2010, 2011			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	ility and Uı	acertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]		Medium		1.7					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Cmr,. 1979. Chemical profile on methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 730485								
EXTRACTION			_							
Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Total Annual U.S. Volume (and percent of PV): Number of Sites:			Manufact Manufact 830,000,0 7	ure of DO						
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	Chemical Marketing Reporter				
Domain 2: Repres	sentative									
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1979				
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size				
Domain 3: Access	Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness			× 1	3	No underlying information provided				
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality D	eterminatio		Medium		2.1	<u> </u>				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Cmr,. 1982. Chemical profile on methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 730486								
EXTRACTION										
Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Total Annual U.S. Volume (and percent of PV): Number of Sites:			Manufacture Manufacture of DCM 722,000,000 lb/yr (1982) 7							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	Chemical Marketing Reporter				
Domain 2: Repres	sentative									
Domain 2. Repro-	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1982				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness			× 1	3	No underlying information provided				
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality D	eterminatio	${f n}^{\dagger}$	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Hall, A. H.,Rumack, B. H 1990. Methylene chloride exposure in furniture-stripping shops: Ventilation and respirator use practices. Journal of Occupational Medicine.								
Type of Data Source Hero ID	Facility; Reports for Data or Information Other than Exposure or Release Data; 730520								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Manufa	cture					
Life Cycle Descrip	tion (Subca	ategory of Use):	Manufa	cture of	DCM				
Total Annual U.S.	Volume (ar	nd percent of PV):	635,000	,000 lb/y	r (1980)				
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabi	Metric 1:	Methodology	Low	× 1	3	Methodology not specified			
D : 0 D									
Domain 2: Representation	entative Metric 2:	Geographic Scope	Uiah	× 1	1	US			
	Metric 2: Metric 3:	Applicability	High High	\times 1 \times 2	$\frac{1}{2}$	Manufacture of DCM			
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	1980			
	Metric 5:	Sample Size	Low	$\stackrel{\wedge}{\times} \stackrel{2}{1}$	3	No information on sample size			
									
Domain 3: Accessi	. ,								
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variabi	ility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Hall, A. H.,Rumack, B. H 1990. Methylene chloride exposure in furniture-stripping shops: Ventilation and respirator use practices. Journal of Occupational Medicine.									
Type of Data Source Hero ID	Facility; R 730520	Facility; Reports for Data or Information Other than Exposure or Release Data; 730520								
EXTRACTION										
Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Total Annual U.S. Volume (and percent of PV):				Processing Formulation of Paint Strippers/Removers 30 percent of PV						
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliability										
	Metric 1:	Methodology	Low	× 1	3	Methodology not specified				
Domain 2: Repres	sentative									
1	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	\times 2	2	Formulation of Paint Strippers/Removers				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1980				
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size				
Domain 3: Access	sibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab	ility and Ur	ncertainty								
Domain 4. Variab	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality Determination [†]			Low		2.3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source	Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID	3982430	eports for Data of Information (Junei unam	Lxposur	or reci	icase Dava,			
EXTRACTION Parameter		Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Process Description: Total Annual U.S. Volume (and percent of PV): Number of Sites:			Manufacture Manufacture of DCM Yes 467,000,000 ;b (1988)520,000,000 lb (1987)735,000,000 lb/yr capacity (1987)607,000,000 lb (1984) 6						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	itv							
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided			
Domain 4: Variab	ility and U	acortainty.							
Domain 4. Variab	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Medium	_	2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa				
· -	Facility; Re 3982430	eports for Data or Information (Other than	Exposure	e or Rel	lease Data;
	982430					
EXTRACTION			D-4-			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description	on (Subca	tegory of Use):	Polyureth	ane Foan	n Blowi	ing
Process Description:	:		Yes			
Total Annual U.S. V	Volume (ai	nd percent of PV):	54,000,000	0 lb (1988	3)	
Number of Sites:			180			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabili	tv					
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Represen	ntative					
÷	Metric 2:	Geographic Scope	High	$\times 1$	1	US
N	Metric 3:	Applicability	High	$\times 2$	2	Polyurethane Foam Blowing
N	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988
N	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessib	ility/Clari	tv				
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided
	. 1					
Domain 4: Variability and Uncertainty			-			
<u>N</u>	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Det	ormination	n†	Medium		2.1	
Overan Quanty Det		ıı.	Mediuili		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982430								
	0002100								
EXTRACTION			D-4-						
Parameter			Data						
Life Cycle Stage:			Processin	ıσ					
Life Cycle Descrip	tion (Subca	ategory of Use):	Distribut	_	ulation				
		nd percent of PV):	250,000,0						
	(r ,	,,-		/				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Caana	Comments			
Domain		Metric	Rating	IVI VV F	Score	Comments			
Domain 1: Reliability									
Domain 1. Renab	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources			
	Wietlic 1.	Wethodology	Iligii	^ 1	1	OSHA report based on other sources			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Distribution/Formulation			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988			
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size			
Domain 3: Access	ibility/Clar								
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variability and Uncertainty				_					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa							
0.2	2111ty; Re 32430	eports for Data or Information (Jtner tnan	Exposur	e or Rei	ease Data;			
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Description	(Subca	tegory of Use):	Aerosols						
Process Description:	`	,	Yes						
Total Annual U.S. Vol	lume (ar	nd percent of PV):	106,000,00	00 lb (19	88)				
Number of Sites:			217						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability	Demois 1. Delichilite								
· ·	etric 1:	Methodology	High	× 1	1	OSHA report based on other sources			
Domain 2: Representa	ative								
÷	etric 2:	Geographic Scope	High	\times 1	1	US			
Me	etric 3:	Applicability	High	$\times 2$	2	Aerosols			
Me	etric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988			
Me	etric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Accessibilit	tv/Clari	t.v							
	etric 6:	Metadata Completeness	Low	$\times 1$	3	No underlying information provided			
Domain 4: Variability	and Un	cortainty							
	and On etric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
		r			-	· · · · · · · · · · · · · · · · · · ·			
Overall Quality Determ	mination	\mathbf{n}^{\dagger}	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa				
0.2	cility; Re 82430	eports for Data or Information (Other than	Exposure	e or Rel	lease Data;
	82430					
EXTRACTION			D 4			
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Description	n (Subca	tegory of Use):	Polycarbo	onate Res	in	
Process Description:	`	,	Yes			
Total Annual U.S. Vo	olume (ai	nd percent of PV):	7,000,000	lb (1988))	
Number of Sites:	Number of Sites:					
EVALUATION						
Domain		Metric	Rating	MWF*	Coone	Comments
Domain		Metric	nating	IVI VV F	Score	Comments
Domain 1: Reliability	•					
	etric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representa	ative					
÷	etric 2:	Geographic Scope	High	$\times 1$	1	US
	etric 3:	Applicability	Medium	$\times 2$	4	Polycarbonate Resin
${ m M}\epsilon$	etric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988
Me	etric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibili	ity/Clari	tv				
	etric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
		T. T			-	v 5 · · · · · · · · · · · · · · · · · ·
Domain 4: Variability	and Un	certainty				
Me	etric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
0 110 11 7		+	_			
Overall Quality Deter	rminatio	n'	Low		2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa						
0 2	Facility; R 3982430	eports for Data or Information (Other than	Exposure	e or Rel	lease Data;		
	3982430							
EXTRACTION			D 4					
Parameter			Data					
Life Cycle Stage:			Processin	g				
Life Cycle Descript	ion (Subca	ategory of Use):	Pharmace	$_{ m outicals}$				
Process Description			Yes					
Total Annual U.S.	Volume (a	nd percent of PV):	28,000,00	0 lb (198	8)			
Number of Sites:			76					
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabil	Domain 1. Poliobility							
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources		
Domain 2: Represe	entative							
*	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	Medium	$\times 2$	4	Pharmaceuticals		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988		
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size		
Domain 3: Accessib	hility/Clari	itv						
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided		
Domain 4: Variability and Uncertainty		т.	1					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
Overall Quality De	torminatio	n [†]	Low		2.3			
Overan Quanty De	nei iiiiiatio	11	LOW		۷.0			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa				
0 2	Facility; R 3982430	eports for Data or Information (Other than	Exposure	e or Rel	lease Data;
	3982430					
EXTRACTION			D 4			
Parameter			Data			
Life Cycle Stage:			Processin	g		
Life Cycle Descript	ion (Subca	ategory of Use):	Manufact	_	ints	
Process Description	n:	,	Yes			
Total Annual U.S.	Volume (a	nd percent of PV):	28,000,00	0 lb (198	8)	
Number of Sites:			390			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliabil	its					
	Metric 1:	Methodology	High	\times 1	1	OSHA report based on other sources
Domain 2: Represe		G			_	
	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of Paints
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessil	bility/Clari	itv				
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided
	Domain 4: Variability and Uncertainty					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination [†]		Medium		2.1		
Overan Quality De	neriiiiatio	11	wiedium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		91. Proposed rules: Occupationa								
Type of Data Source Hero ID	3982430	Facility; Reports for Data or Information Other than Exposure or Release Data; 3982430								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Processin	g						
Life Cycle Descrip	tion (Subca	ategory of Use):	Manufact	_	int Ren	novers				
Process Description	on:	,	Yes							
	. Volume (a	nd percent of PV):	155,000,0	00 lb (19	88)					
Number of Sites:			293							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliabi	ility									
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources				
Domain 2: Repres	sentative									
1	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of Paint Removers				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988				
-	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	ibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab	ility and U	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality Determination [†]		Medium		2.1						
Overall Quality D		••	Modfulli		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		01. Proposed rules: Occupationa				
Type of Data Source Hero ID	Facility; R 3982430	eports for Data or Information (Other than	Exposur	e or Rel	ease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Stri	ipping		
Process Description		8,/-	Yes	-FF0		
		nd percent of PV):	52,000,00	0 lb (198	8)	
Number of Sites:			75 large a	aircraft st	rippers	; 225 small air craft strippers; 4,000 furniture
			strippers;	1,930 in	dustrial	firms
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	ility					
Domain 1. Itenab.	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Repres	sentative					
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Paint Stripping
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Access	ibility/Clar	ity				
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variab	ility and Ur	ncertainty				
	Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	No discussion of variability or uncertainty
Overall Quality D	Overall Quality Determination [†]		Medium		2.1	
Overan Quanty D		11	Medium		2.1	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		1. Proposed rules: Occupationa				
Type of Data Source Hero ID	3982430	eports for Data or Information (Jther than	Exposur	e or Re	lease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Degreasin	g and M	etal Cle	eaning
Process Description	on:	,	Yes	_		
	. Volume (a	nd percent of PV):	41,000,00	(,	
Number of Sites:			,	_	sers; 12	9 open top degreasers; 111 conveyorized vapor
			degreaser	S		
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliab	ility					
	Metric 1:	Methodology	High	\times 1	1	OSHA report based on other sources
Domain 2: Repres	sentative					
Bollioni 2. Ropros	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Degreasing and Metal Cleaning
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988
_	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Access	ibility/Clar	itv				
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided
Domain 4: Variab	ility and Ur	ocortainty				
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness			Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination [†]		Medium		2.1		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Source Citation: Osha, 1991. Proposed rules: Occupational exposure to methylene chloride.									
Type of Data Source Hero ID		Facility; Reports for Data or Information Other than Exposure or Release Data;								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:	Life Cycle Stage									
Life Cycle Descrip	otion (Subca	ategory of Use):	Cellulose	Triacetat	e and I	Film Base Production				
Process Description		,	Yes							
Total Annual U.S	. Volume (a	nd percent of PV):	11,000,00	0 lb (198	8)					
Number of Sites:		1								
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ility									
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Cellulose Triacetate and Film Base Production				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	sibility/Clar	itv								
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided				
Domain 4: Variab	sility and Ur	ncertainty								
	Metric 7: Metadata Completeness		Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality Determination †		Medium		2.1						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		1. Proposed rules: Occupationa						
0.2	acility; Re 982430	eports for Data or Information (Other than	Exposure	e or Rel	ease Data;		
	982430							
EXTRACTION			D 4					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descriptio	on (Subca	tegory of Use):	Electronic	CS				
Process Description:	`	,	Yes					
Total Annual U.S. Vo	olume (ar	nd percent of PV):	40,000,00	0 lb (1988	3)			
Number of Sites:			1059					
EVALUATION								
Domain		Metric	Rating	MWF^*	Score	Comments		
Domain 1: Reliability	Demoi: 1 Delichilia.							
	y Ietric 1:	Methodology	High	× 1	1	OSHA report based on other sources		
Domain 2. Domagant	tatima							
Domain 2: Represent	letric 2:	Geographic Scope	High	× 1	1	US		
	letric 2. letric 3:	Applicability	High	$\stackrel{\wedge}{\times} \stackrel{1}{2}$	2	Electronics		
	letric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988		
	letric 5:	Sample Size	Low	× 1	3	No information on sample size		
Domain 3: Accessibil	l:4/Classi	4						
	Inty/Clari Ietric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided		
	icuric o.	Wictadata Completeness	LOW			No underlying information provided		
Domain 4: Variabilit	y and Un	certainty						
	letric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
		2.5.11						
Overall Quality Determination †			Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Osha, 1991. Proposed rules: Occupational exposure to methylene chloride. Type of Data Source Hero ID Sala Source Hero ID Sala Source Sala Source Tacility; Reports for Data or Information Other than Exposure or Release Data; 3982430								
EXTRACTION Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Process Description: Total Annual U.S. Volume (and percent of PV): Number of Sites:			Proc/Use Miscellaneous (Food extraction, pesticide formialtion, and ink) Yes 38,000,000 lb (1988) 3 food processing companies; 37 ink manufacturers; 10,482 printers; Note that report later indicates that DCM is no longer used in food extraction and that use in pesticides and ink have already or will be phased out					
EVALUATION Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliability Me	etric 1:	Methodology	High	× 1	1	OSHA report based on other sources		
Me Me	etric 2: etric 3: etric 4: etric 5:	Geographic Scope Applicability Temporal Representativeness Sample Size	High High Low Low	$\begin{array}{c} \times \ 1 \\ \times \ 2 \\ \times \ 2 \\ \times \ 1 \end{array}$	1 2 6 3	US Miscellaneous (Food extraction, pesticide formialtion, and ink) 1984-1988 No information on sample size		
	Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness		Low	× 1	3	No underlying information provided		
=	Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness		Low	× 1	3	No discussion of variability or uncertainty		
Overall Quality Determination †		Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data; Hero ID EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Solvent recovery Process Description: Yes Total Annual U.S. Volume (and percent of PV): Number of Sites: Domain 1: Reliability Metric 1: Methodology Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representative Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low V 1 3 No discussion of variability or uncertainty Metric 7: Metadata Completeness Low V 1 3 No discussion of variability or uncertainty Metric 7: Metadata Completeness Low Medium 2.1							
EXTRACTION Parameter Data Life Cycle Stage: Life Cycle Description (Subcategory of Use): Solvent recovery Yes Total Annual U.S. Volume (and percent of PV): Number of Sites: FVALUATION Domain 1: Reliability Metric 1: Methodology Metric 2: Geographic Scope Metric 2: Geographic Scope Metric 4: Temporal Representativeness Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Process Description: Yes Total Annual U.S. Volume (and percent of PV): Number of Sites: Ves	0 2		eports for Data or Information (Ither than	Exposure	e or Rel	ease Data;
Life Cycle Description (Subcategory of Use): Solvent recovery Process Description: Yes Total Annual U.S. Volume (and percent of PV): 37,000,000 lb (1988) Number of Sites: EVALUATION Domain Metric Rating MWF* Score Comments Domain 1: Reliability Metric 1: Methodology High × 1 1 OSHA report based on other sources Domain 2: Representative Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Solvent recovery Metric 4: Temporal Representativeness Metric 5: Sample Size Low × 2 6 1984-1988 Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	EXTRACTION						
Life Cycle Description (Subcategory of Use): Process Description: Total Annual U.S. Volume (and percent of PV): Number of Sites: Solvent recovery Yes	Parameter			Data			
Life Cycle Description (Subcategory of Use): Process Description: Total Annual U.S. Volume (and percent of PV): Number of Sites: Ves	Life Cycle Stage:			Use			
Process Description: Total Annual U.S. Volume (and percent of PV): Number of Sites: Vestro	i e	ion (Subca	tegory of Use):	Solvent re	ecovery		
Number of Sites: 40	Process Description	n:	,				
EVALUATION Domain 1: Reliability Metric 1: Methodology High × 1 1 OSHA report based on other sources Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High × 1 1 US Metric 4: Temporal Representativeness Low × 2 6 1984-1988 Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	Total Annual U.S.	Volume (ar	nd percent of PV):	37,000,000	0 lb (198	8)	
Domain 1: Reliability Metric 1: Methodology High × 1 1 OSHA report based on other sources Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High × 2 2 Solvent recovery Metric 4: Temporal Representativeness Low × 2 6 1984-1988 Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	\ /			40			
Domain 1: Reliability Metric 1: Methodology High × 1 1 OSHA report based on other sources Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability High × 1 1 US Metric 4: Temporal Representativeness Low × 2 6 1984-1988 Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	EVALUATION						
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Metric 7: Metadata Completeness Metadata Completenes	Domain		Metric	Rating	MWF^*	Score	Comments
Domain 2: Representative Metric 2: Geographic Scope Metric 3: Applicability Metric 4: Temporal Representativeness Metric 5: Sample Size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Metric 7: Metadata Completeness Metric 8: Metadata Completeness Metric 8: Metadata Completeness Metric 8: Metadata Completeness Metric 8: Metadata C	Domain 1: Reliabil	itv					
Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Solvent recovery Metric 4: Temporal Representativeness Low × 2 6 1984-1988 Metric 5: Sample Size Low × 1 3 No information on sample size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty			Methodology	High	× 1	1	OSHA report based on other sources
Metric 2: Geographic Scope High × 1 1 US Metric 3: Applicability High × 2 2 Solvent recovery Metric 4: Temporal Representativeness Low × 2 6 1984-1988 Metric 5: Sample Size Low × 1 3 No information on sample size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	Domain 2: Represe	ntative					
Metric 3: Applicability High × 2 2 Solvent recovery Metric 4: Temporal Representativeness Low × 2 6 1984-1988 Metric 5: Sample Size Low × 1 3 No information on sample size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	_		Geographic Scope	High	\times 1	1	US
Metric 5: Sample Size Low × 1 3 No information on sample size Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty		Metric 3:	Applicability	High	$\times 2$	2	Solvent recovery
Domain 3: Accessibility/Clarity Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty		Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1984-1988
Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty		Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Metric 6: Metadata Completeness Low × 1 3 No underlying information provided Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	Domain 3: Accessib	oility/Clari	ty				
Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty		. ,	·	Low	\times 1	3	No underlying information provided
Metric 7: Metadata Completeness Low × 1 3 No discussion of variability or uncertainty	Domain 4: Variabil	ity and Un	certainty				
Overall Quality Determination † Medium 2.1		•		Low	× 1	3	No discussion of variability or uncertainty
	Overall Quality Determination [†]		Medium		2.1		

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Manufact	ure					
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact		CM				
		nd percent of PV):	469,200,0		-				
Number of Sites:	(1)	F ,	4		/				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Damain 1. Daliah	:1:4								
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
	Medic 1.	Wethodology	Iligii		1	OSHA FIIIAI KUIE			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
D ' 9 A	11.111 /01	•,							
Domain 3: Access	Metric 6:		Ι	v 1	9	N 1 1 1 1 C 11 1 1			
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Processin	g					
Life Cycle Descrip			Distributi						
	. Volume (a	nd percent of PV):	189,650,0	00 lb (19	90)				
Number of Sites:			320						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
ī	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Distribution/Formulation			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	sibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	oility and Ui	acertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality D	eterminatio	$ m n^{\dagger}$	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source		Osha, 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data;							
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subca	ategory of Use):		reasing a	nd Oth	er Cold Cleaning:			
		nd percent of PV):	32560000			o de la companya de			
Number of Sites:			23717						
EVALUATION						_			
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
Domain 1. Itenab	Metric 1:	Methodology	High	\times 1	1	OSHA Final Rule			
Domain 2: Repres	Metric 2:	Community Comm	TT:l.	v. 1	1	***			
	Metric 2: Metric 3:	Geographic Scope Applicability	High High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{1}{2}$	US Cold Degreasing and Other Cold Cleaning:			
	Metric 4:	Temporal Representativeness	Low	$\stackrel{\wedge}{\times} \stackrel{2}{2}$	6	1990			
	Metric 5:	Sample Size	Low	$\times 1$	3	No information on sample size			
-									
Domain 3: Access	. ,	·							
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	ility and Ur	ncertainty							
Domain 1. Variab	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
Overall Quality D	eterminatio	${f n}^{\dagger}$	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source Hero ID	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Open Top	p Vapor l	Degreas	ing			
		nd percent of PV):	14870000		_				
Number of Sites:	`	,	278						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
		I.I.euric			50010				
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Open Top Vapor Degreasing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	$\times 1$	3	No information on sample size			
Domain 3: Access	sibility/Clar	itx							
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided			
Domain 4: Variab		•	_		_				
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality D	Otorminatio	n [†]	Medium		2.1				
Overan Quanty D	erei iiiiiiqfiO	11	Mediulli		4.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha, 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source Hero ID	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Conveyor	ized Van	or Degr	easing			
		nd percent of PV):	1130000		01 2 081				
Number of Sites:	(1)	· ·	45	()					
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Damain 1. Daliah	:1:4								
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
	MEGIIC 1.	Wethodology	Iligii	^ 1	1	OSHA FIHAI Rule			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Conveyorized Vapor Degreasing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size			
D ' 0 A	11 111 /01	•,							
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	9	N 1 1 1 1 C 1 1 1 1			
-	Metric 6:	Metadata Completeness	LOW	X 1	3	No underlying information provided			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
				·					
Overall Quality D	eterminatio	n [†]	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source	. ,	Facility; Reports for Data or Information Other than Exposure or Release Data;							
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Tifo Cruala Chama.			Use						
Life Cycle Stage: Life Cycle Descrip	otion (Subas	otogowy of Ugo).	Semicond	luetore					
		nd percent of PV):	400000 lb						
Number of Sites:	. volume (a	nd percent of i v).	239	(1990)					
rumber of brees.			200						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
D ' 1 D l' 1	•1•4								
Domain 1: Reliab	Metric 1:	M-41 1-1	TT:l.	1	1	OCHA EL LE L			
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Semiconductors			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size			
D : 0 A	11.111 /01	•,							
Domain 3: Access	٠,	·	т	1	0				
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	ility and Ur	ncertainty							
Domain 4. Varias	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
		1				v v			
Overall Quality D	eterminatio	${ m n}^{\dagger}$	Medium		2.1				
5 ·									

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source		Osha, 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data;							
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Printed C	Circuit Bo	oards				
	. Volume (a	nd percent of PV):	13980000	lb (1990))				
Number of Sites:			141						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Printed Circuit Boards			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	itv							
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	ility and Ur	ocertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Organil Ouglite D	at amosim a t: -		Medium		2.1				
Overall Quality D	eterminatio	11.	weatum		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION									
Parameter			Data						
	Cycle Description (Subcategory of Use): I Annual U.S. Volume (and percent of PV):			Processing Aerosol Packaging 25210000 lb (1990) 52					
EVALUATION						_			
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
20 100p100	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Aerosol Packaging			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	oility and Ur Metric 7:	-	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality D			Medium		2.1	V 1 - 1 - 1 - V			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source		Osha, 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID	3978298									
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Processin	Q						
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Ren	0	anufactu	ıring				
	. Volume (a	nd percent of PV):	13685000	0 lb (199	0)					
Number of Sites:			80							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1. Daliah	:1:4									
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
		St.								
Domain 2: Repres										
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Paint Remover Manufacturing				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	sibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided				
Domain 4. V:-1	.:1:4 on d IT-	- containts								
Domain 4: Varian	Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness Low \times 1 3 No discussion of variability or uncertainty									
	Metric 7:	Metadata Completeness	LOW	× 1	ა 	No discussion of variability or uncertainty				
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1					
O votani agaaniy D	200111111111111111111111111111111111111		1.10dfdfff		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source Hero ID	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Processin	σ					
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Ma	0	ng				
		nd percent of PV):	3540000 l		6				
Number of Sites:		• /	49	, ,					
EVALUATION					_	_			
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	ility								
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Paint Manufacturing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	ity							
Domain 9. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided			
Domain 4. V:-1	:1:4 on d II-	a containte							
Domain 4: Variab		•	Ι	v 1	9	NT 1:			
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1				
Overall Squality D		••	1.10dfdfff		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.							
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;								
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Life Creale Steme			Use						
Life Cycle Stage: Life Cycle Descrip	ation (Cubas	otogowy of Ugo).	Paint Str	inning. A	inanoft				
		nd percent of PV):	13170000						
Number of Sites:	. vorume (a	nd percent of 1 v j.	300	10 (1990)				
rumber of brees.			300						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Danie 1. Daliah	:1:4								
Domain 1: Reliab	Metric 1:	Methodology	II: mb	v 1	1	OGHA E. T. I. I.			
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Paint Stripping: Aircraft			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size			
D ' 9 A	11 111 /01	•,							
Domain 3: Access	. ,	•	т	1	0				
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	oility and Ur	ncertainty							
Domain I. Varias	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
	·					v v			
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1				
5 ·									

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex								
Type of Data Source	. ,	eports for Data or Information (Other than	Exposur	e or Rel	lease Data;				
Hero ID	3978298	3918298								
EXTRACTION			_							
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Furniture	Strippin	g					
		nd percent of PV):	23260000		_					
Number of Sites:			6152							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1. Daliah	:1:4									
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
	WICOITC 1.	Wethodology	111811			OSHA Pinai Itule				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Furniture Stripping				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Damain 2. Access	::la:1:4/Clam	:4								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
	WICCIIC O.	Wetadata Completeness	LOW			ivo underlying information provided				
Domain 4: Variab	oility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
-										
Overall Quality D	eterminatio	n^{\intercal}	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex							
Type of Data Source	. ,	eports for Data or Information (Other than	Exposure	e or Rel	ease Data;			
Hero ID	3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Other Inc	dustrial F	Paint Sti	rinning			
		nd percent of PV):	59360000						
Number of Sites:	. , 0141110 (6	na percent er i v).	35041	10 (1000)	,				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab									
Domain 1. Renau	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
	11100110 11	mietne delegj	****						
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Other Industrial Paint Stripping			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size			
D ' 0 A	11 111 /01	•,							
Domain 3: Access	Metric 6:	· ·	T	v 1	9	NT 1 1 1 1 C 1 1 1 1			
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	oility and U	ncertainty							
Domain i. varias	Metric 7:	Metadata Completeness	Low	$\times 1$	3	No discussion of variability or uncertainty			
		F 111				a construction of the construction of			
Overall Quality D	eterminatio	n^\dagger	Medium		2.1				
5 ·									

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational exp						
Type of Data Source		eports for Data or Information (Other than	Exposure	e or Rel	ease Data;		
Hero ID	3978298							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	otion (Subca	ategory of Use):		Polyureth	ane Foa	um Manufacturing		
		nd percent of PV):	50320000			in Manufacturing		
Number of Sites:	. voranie (a	na percent of 1 v).	100	10 (1000)	,			
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliab	:1:+							
Domain 1. Kenab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule		
	Wicorie 1.	Wethodology	111611	/\ I		Oblin I mai ituic		
Domain 2: Repres	sentative							
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Flexible Polyurethane Foam Manufacturing		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990		
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size		
D	::l-::l::4/Cl	·						
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No. and held to a telegraph to a second to a second to a		
	Metric 6.	Metadata Completeness	LOW	X 1	J	No underlying information provided		
Domain 4: Variab	oility and U	ncertainty						
	Metric 7:	Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty		
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION								
Parameter			Data					
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Total Annual U.S. Volume (and percent of PV): Number of Sites:			Processing/Use Manufacturing and Use of Plastics and Adhesives 41900000 lb (1990) 3487					
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	OSHA Final Rule		
Domain 2: Repres	contativo							
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Manufacturing and Use of Plastics and Adhesives		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990		
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size		
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	No underlying information provided		
Domain 4: Variab	oility and Ur Metric 7:	-	Low	× 1	3	No discussion of variability or uncertainty		
Overall Quality Determination [†]		Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		7. Final rules: Occupational ex						
Type of Data Source		eports for Data or Information (Other than	Exposure	e or Rel	lease Data;		
Hero ID	3978298							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Processin	ø				
Life Cycle Descrip	tion (Subca	ategory of Use):	Adhesive	_	on			
Number of Sites:	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		165					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliab	Domain 1: Reliability							
Bolliam 1. Itolian	Metric 1:	Methodology	High	\times 1	1	OSHA Final Rule		
		<u> </u>						
Domain 2: Repres								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Adhesive Production		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990		
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size		
Domain 3: Access	ibility/Clar	itv						
Bomain of Heedes	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided		
Domain 4: Variability and Uncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
0 110 111 15		+	3.5.11		0.1			
Overall Quality D	eterminatio	n'	Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		7. Final rules: Occupational ex								
Type of Data Source	. ,	eports for Data or Information (Other than	Exposure	e or Rel	lease Data;				
Hero ID	3978298	3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	tion (Subca	ategory of Use):	Adhesive	Use						
Number of Sites:	`	, , , , , , , , , , , , , , , , , , ,	1753							
EVALUATION										
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
D D										
Domain 1: Reliabi		Mathadala	TT:1.	v. 1	1	OCH PLAN				
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
Domain 2: Repres	entative									
1	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Adhesive Use				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	ibility/Clari	its								
Domain 5. Access.	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
		P				The analysis and the state of				
Domain 4: Variab	ility and Ur									
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
		_								
Overall Quality D	eterminatio	n'	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.								
Type of Data Source	. ,	eports for Data or Information	Other than	Exposure	e or Rel	lease Data;				
Hero ID	3978298									
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	tion (Subca	ategory of Use):	Injection	Molding						
Number of Sites:	(10 410 0	89	80							
EVALUATION										
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments				
Domain 1. Daliahi										
Domain 1: Reliabi	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
	Metric 1.	Wethodology	IIIgii		1	OSHA FIHAI Rule				
Domain 2: Repres	entative									
Ī	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Injection Molding				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Accessi	ibility/Clar	itar								
Domain 5: Accessi	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
	WICUIC O.	Wetadata Completeness	LOW	× 1		No underlying information provided				
Domain 4: Variabi	ility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality De	eterminatio	\mathbf{n}^{\intercal}	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	tion (Subca	ategory of Use):	Laminati	on				
Number of Sites:	•	,	1323					
EVALUATION	EVALUATION							
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliability								
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule		
Domain 2: Represe	entative							
20 100p1000	Metric 2:	Geographic Scope	High	\times 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Lamination		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990		
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size		
Domain 3: Accessi	bility/Clari	ity						
Domain 6. Hecessi	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided		
D . 4 W . 1.	11.4							
Domain 4: Variabi	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
		moradata Completeness		/\ I		To discussion of variability of uncortainty		
Overall Quality Determination [†]			Medium		2.1			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	0.1100	T F: 1 1 0		.1.1	11 .1				
	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data;								
0.2	3978298	eports for Data or Information	Otner than	Exposure	e or Rei	ease Data;			
	0010200								
EXTRACTION Parameter			Data						
			Data						
Life Cycle Stage:			Use						
Life Cycle Descript	tion (Subca	ategory of Use):	Mold Rel	ease					
Number of Sites:			165						
EVALUATION			5			G			
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliabil	Domain 1: Reliability								
	Metric 1:	Methodology	High	\times 1	1	OSHA Final Rule			
D D									
Domain 2: Represe	entative Metric 2:	Communic Comm	TT:1.	v. 1	1	TVG			
	Metric 2: Metric 3:	Geographic Scope Applicability	High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{1}{2}$	US Mold Release			
	Metric 4:	Temporal Representativeness	High Low	$\times 2 \times 2$	6	Moid Release 1990			
	Metric 5:	Sample Size	Low	× 2 × 1	3	No information on sample size			
		r							
Domain 3: Accessi	bility/Clari								
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
D ' 4 W ' 1''	1., 1.77								
Domain 4: Variabi	-	-	Т	v. 1	9	N. 11			
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]			Medium		2.1				
Overall Quality De	eterminatio	11.	medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Facility; R	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION										
Parameter		Data								
- Tarameter			Data							
Life Cycle Stage:			Processin	ıg						
Life Cycle Descrip	otion (Subca	ategory of Use):	Ink and I	nk Solvei	nt Manı	ufacturing				
	. Volume (a	nd percent of PV):	3680000 1	lb (1990)						
Number of Sites:			15							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
5 5										
Domain 1: Reliab		Mada adala	TT:1.	v. 1	1	OCH PLAN				
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
Domain 2: Repres	sentative									
Bomain 2. Repres	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Ink and Ink Solvent Manufacturing				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	$\times 1$	3	No information on sample size				
D										
Domain 3: Access	. ,	· ·	т.							
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab	ility and U	ncertainty								
Domain 1. Varias	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
		P								
Overall Quality D	eterminatio	n^\dagger	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Ink Solve	ent Use in	Printir	ng			
	. Volume (a	nd percent of PV):	3680000 1	lb (1990)					
Number of Sites:			11869						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliab	Demois 1. Delichilite								
Bomain 1. Itenab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Ink Solvent Use in Printing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	ility and Ui	acertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex								
Type of Data Source Hero ID	Facility; R 3978298	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Processin	g/Use						
Life Cycle Descrip	otion (Subca	ategory of Use):			turing a	and Formulation				
		nd percent of PV):	9580000 1							
Number of Sites:	`	- ,	60	, ,						
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ility									
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Pesticide Manufacturing and Formulation				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
_	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	ibility/Clar	ity								
Domain 5. Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab			_		_					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality D	eterminatio	n [†]	Medium		2.1					
Overan Quanty D	erei iiiiiqti0	111	Mediulli		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.								
Type of Data Source Hero ID	Facility; R 3978298	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Processin	ur/Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Pharmac		anufact	uring				
		nd percent of PV):	39530000							
Number of Sites:		,	108		,					
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Di 1. D-li-l-	:1:4									
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
	Metric 1.	Wethodology	mgn	× 1	1	OSHA FIIIAI Kule				
Domain 2: Repres	sentative									
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Pharmaceutical Manufacturing				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Damain 2. Access	::la:1:4 /Clam	:4								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
-		moradana Compreheness	HOW .	/\ I	-	To anderlying information provided				
Domain 4: Variab	oility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
-		1								
Overall Quality D	eterminatio	†	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		Osha,. 1997. Final rules: Occupational exposure to methylene chloride.								
Type of Data Source		eports for Data or Information (Other than	Exposure	e or Rel	ease Data;				
Hero ID	3978298									
EXTRACTION										
Parameter			Data							
Tifo Cruala Chama.			Use							
Life Cycle Stage: Life Cycle Descrip	ation (Cubas	otogowy of Ugo).	Solvent F	2000110111						
		nd percent of PV):	32100000)					
Number of Sites:	. vorume (a	nd percent of 1 v j.	34	10 (1990)					
rumber of blees.	OT .									
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Damain 1. Daliah										
Domain 1: Reliab	Metric 1:	Methodology	II: mb	v 1	1	COTTA E. 1 D 1				
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Solvent Recovery				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
D : 0 A	11 111 /01	•,								
Domain 3: Access	. ,	· ·	т	1	0					
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab	oility and Ur	ncertainty								
Bollium I. Vurian	Metric 7:	Metadata Completeness	Low	$\times 1$	3	No discussion of variability or uncertainty				
	·	1				v v				
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.1					
-										

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex								
Type of Data Source Hero ID	Facility; R 3978298	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Film Base	e Manufa	cturing					
		nd percent of PV):	8900000 1							
Number of Sites:	`	,	1	, ,						
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Damain 1. Daliah	:1:4									
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
	Metric 1.	Wethodology	Iligii		1	OSHA FIIIAI RUIE				
Domain 2: Repres	sentative									
•	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Film Base Manufacturing				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Damain 2. Access	::la:1:4/Clam	:4								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
	metric o.	Wiedada Completeness	Low			Two underlying information provided				
Domain 4: Variab	oility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
-		1								
Overall Quality D	eterminatio	n [†]	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298							
EXTRACTION									
Parameter			Data						
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Total Annual U.S. Volume (and percent of PV): Number of Sites:			Use Polycarbonate Manufacturing 6700000 lb (1990) 4						
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliab	ility Metric 1:	Methodology	High	× 1	1	OSHA Final Rule			
Domain 2: Repres	contativo								
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Polycarbonate Manufacturing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	sibility/Clar Metric 6:	ity Metadata Completeness	Low	× 1	3	No underlying information provided			
Domain 4: Variab	oility and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Osha,. 1997. Final rules: Occupational exposure to methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	construct	ion						
Total Annual U.S	. Volume (a	and percent of PV):	2440000	lb (1990)						
Number of Sites:			9504							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab										
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	construction				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 3: Access	ibility/Clar	ity								
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab	ility and Ui	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
Overall Quality Determination [†]		Medium		2.1						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		97. Final rules: Occupational ex								
Type of Data Source Hero ID	3978298	Facility; Reports for Data or Information Other than Exposure or Release Data; 3978298								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Shipvards	5						
		nd percent of PV):	470000 lb	(1990)						
Number of Sites:			25							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Damain 1. Daliah										
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule				
	Wicoric 1.	Wiedlodology	111611	/\ I		OBITA I mai ituic				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Shipyards				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
Domain 2. Access	ibilita /Clani	:4								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
	Wicoric O.	Wiedada Completeness	Low			ivo underlying information provided				
Domain 4: Variab	ility and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
		4								
Overall Quality D	eterminatio	\mathbf{n}^{\intercal}	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Nih,. 2016. Report on carcinogens: Dichloromethane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982330							
	0002000								
EXTRACTION Parameter			Data						
1 arameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Str	ippers an	d Remo	overs			
Total Annual U.S	. Volume (a	nd percent of PV):	30 percen	ıt					
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliab									
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)			
Domain 2: Repres	antativa								
Domain 2: Kepres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Paint Strippers and Removers			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	unknown (need to see Holbrook 2003) (at least 10 years old)			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
		•				•			
Domain 3: Access	sibility/Clar	ity							
	Metric 6:	Metadata Completeness	Low	$\times 1$	3	No underlying information provided			
Domain 4: Variab			т.						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †			Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	Nih,. 2016. Report on carcinogens: Dichloromethane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982330								
	0302000								
EXTRACTION			D 4						
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Adhesives	S					
		nd percent of PV):	20 percen	t					
	(,	1						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
		TVICOTIO	14441118	111 11 1	Beore	Commones			
Domain 1: Reliab	Domain 1: Reliability								
	Metric 1:	Methodology	Low	\times 1	3	References Holbrook 2003 (Kirk Othmer)			
		G/				,			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Adhesives			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	unknown (need to see Holbrook 2003) (at least 10 years old)			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access									
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
D									
Domain 4: Variab	-		т.	1					
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Nih, 2016. Report on carcinogens: Dichloromethane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982330							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Propellan	t in Aero	sols				
		nd percent of PV):	10 percen						
EVALUATION									
Domain		Metric	Rating	MWF^*	Score	Comments			
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)			
	WICUIC 1.	Wethodology	LOW	× 1	- 0	References Holbrook 2005 (Kirk Othmer)			
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Propellant in Aerosols			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	unknown (need to see Holbrook 2003) (at least 10 years old)			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	i++-							
Domain 5. Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
		C.C. C.							
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Nih,. 2016. Report on carcinogens: Dichloromethane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982330								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Solvent in	the Mai	nufactui	re of Pharmaceuticals and Drugs				
Total Annual U.S	. Volume (a	nd percent of PV):	10 percen	it						
EVALUATION	EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments				
		Mourie	14441118	111 11 1	Beere					
Domain 1: Reliab	Domain 1: Reliability									
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)				
D	4-4:									
Domain 2: Repres	Metric 2:	Geographic Scope	High	× 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Solvent in the Manufacture of Pharmaceuticals and Drugs				
	Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)				
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size				
-										
Domain 3: Access	. ,		т.	1						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
Domain 4: Variab	oility and Ur	ncertainty								
Domain I. Various		Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty				
Overall Quality Determination [†]			Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Nih,. 2016. Report on carcinogens: Dichloromethane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982330							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Chemical	Processi	ng				
		nd percent of PV):	10 percen		**8				
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)			
	MEGIIC 1.	Wethodology	LOW	^ 1		References Holbrook 2003 (Kirk Othmer)			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Chemical Processing			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	unknown (need to see Holbrook 2003) (at least 10 years old)			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	sibility /Class	:+							
Domain 5: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
	1,100110 01	micradata compietences	2011			The analysing information provided			
Domain 4: Variab	oility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]		Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Nih,. 2016. Report on carcinogens: Dichloromethane. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982330							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):		eaning an	d Finisl	hing Solvent			
Total Annual U.S	. Volume (a	nd percent of PV):	10 percen	t					
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability									
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)			
Domain 9. Donnes	tati								
Domain 2: Repres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Metal Cleaning and Finishing Solvent			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	unknown (need to see Holbrook 2003) (at least 10 years old)			
	Metric 5:	Sample Size	Low	\times 1	3	No information on sample size			
Domain 3: Access	ibility/Clan	:+							
Domain 5: Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided			
		r				1			
Domain 4: Variab									
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †			Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Nih,. 2016	Nih,. 2016. Report on carcinogens: Dichloromethane.							
Type of Data Source		eports for Data or Information (Other than	Exposure	e or Rel	lease Data;			
Hero ID	3982330								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Urethane	Foam Bl	owing				
Total Annual U.S.	. Volume (a	nd percent of PV):	5 percent						
EVALUATION									
Domain		Metric	Rating	MWF^*	Score	Comments			
Damain 1. Daliahi									
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)			
	Metric 1.	Wethodology	LOW	X 1	<u> </u>	References Holorook 2003 (Kirk Othmer)			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Urethane Foam Blowing			
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	unknown (need to see Holbrook 2003) (at least 10 years old)			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clar	ity							
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided			
		-							
Domain 4: Variab									
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
		+							
Overall Quality D	eterminatio	n'	Medium		2.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Nih,. 2016	. Report on carcinogens: Dichlo	romethane.							
Type of Data Source	. ,	eports for Data or Information	Other than	Exposure	e or Rel	lease Data;				
Hero ID	3982330	3982330								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Manufact	ure						
Life Cycle Descrip	tion (Subca	ategory of Use):	Manufact		CM					
Number of Sites:	(,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		4							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
D ' 1 D !' 1										
Domain 1: Reliab	Metric 1:	Methodology	Low	× 1	3	References SRI 2009				
	Metric 1.	Wethodology	LOW	X 1	ა	References SRI 2009				
Domain 2: Repres	sentative									
•	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM				
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2009				
	Metric 5:	Sample Size	Low	$\times 1$	3	No information on sample size				
Domain 3: Access	ihility/Clar	ity								
Domain 5. Access	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided				
		*								
Domain 4: Variab										
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty				
0 110 11 12		+	3.5.11							
Overall Quality D	eterminatio	n'	Medium		1.9					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Nih,. 2016	. Report on carcinogens: Dichlo	romethane.							
Type of Data Source	Facility; R	eports for Data or Information	Other than	Exposure	e or Rel	lease Data;				
Hero ID	3982330	3982330								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Distribut	ion						
Life Cycle Descrip	otion (Subce	atogory of Uso):	Distribut							
Number of Sites:	Juon (Subca	negory or ose).	58 U.S. S							
rumber of brees.			00 0.5. 5	ирристь						
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	Metric 1:	Mathadalam	Low	× 1	3	References ChemSources 2009				
	Metric 1:	Methodology	LOW	X 1	- 3	References ChemSources 2009				
Domain 2: Repres	sentative									
1	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Distribution				
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2009				
	Metric 5:	Sample Size	Low	$\times 1$	3	No information on sample size				
Domain 3: Access	sibility/Clar	itv								
Domain 9. Necesi	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided				
Domain 4. V:-1	:11:4 and II-	a containt.								
Domain 4: Variab	Metric 7:	Metadata Completeness	Low	v 1	3	N. Province Control 1114				
	Metric 7:	Metadata Completeness	LOW	× 1	<u> </u>	No discussion of variability or uncertainty				
Overall Quality Determination [†]			Medium		1.9					
Overan Quanty D	Cocriminatio	11	MEGIUIII		1.0					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

		00. Toxicological profile for meth						
0.2	Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Manufact	ure				
Life Cycle Descript	ion (Subca	ategory of Use):	Manufact		CM			
Process Description		,	Yes					
Total Annual U.S.	Volume (ar	nd percent of PV):	545,000,0	00 lb cap	acity (1	999)		
Number of Sites:			4					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabil	itv							
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR		
Domain 2: Represe	entative							
-	Metric 2:	Geographic Scope	High	\times 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Manufacture of DCM		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old		
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error		
Domain 3: Accessib	hility/Clari	tv						
	Metric 6:	Metadata Completeness	Low	\times 1	3	Only results provided		
Domain 4: Variabil	liter and II-							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
-	MEDIIC 1:	Metadata Completeness	LOW	^ 1	J	No discussion of variability or uncertainty		
Overall Quality De	terminatio:	n^{\dagger}	Medium		2.0			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Import						
Life Cycle Descrip			Import			200 4000			
Total Annual U.S	. Volume (a	nd percent of PV):	132-145 n	nilion pot	inds (19	992-1996)			
EVALUATION	EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability									
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR			
Domain 2: Repres	antatira								
Domain 2: Kepres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Import			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old			
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error			
D	:1-:1:4/01	•							
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided			
	WICUITC O.	Wetadata Completeness	LOW	× 1		Only results provided			
Domain 4: Variab	oility and Ur	acertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]			Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Paint Str	ippers an	d Remo	overs			
Total Annual U.S	. Volume (a	nd percent of PV):	25 percen	ıt					
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	Domain 1: Reliability								
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR			
Domain 2: Repres	contativo								
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Paint Strippers and Removers			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old			
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error			
Domain 3: Access	vibility/Clar	itz							
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	Only results provided			
		-							
Domain 4: Variability and Uncertainty									
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]			Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):	Propellan	t in Aero	sols				
		nd percent of PV):	25 percen						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Roliah	Domain 1: Reliability								
Domain 1. Renab	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR			
		5.55 5.55 5.55 5.55	6						
Domain 2: Repres	sentative								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Propellant in Aerosols			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old			
	Metric 5:	Sample Size	Medium	$\times 1$	2	Provided an estimate - uncertain range or error			
D 2. A	::1::1::4/C1								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	Oul months and that			
	Metric 6:	Metadata Completeness	LOW	X 1	<u> </u>	Only results provided			
Domain 4: Variab	oility and Ur	ncertainty							
		Metadata Completeness	Low	\times 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †		Medium		2.0					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION			D /						
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip			Proces so	lvent in 1	nfg of d	lrugs, pharmaceuticals, and film coatings			
Total Annual U.S.	. Volume (a	nd percent of PV):	20 percen	ıt					
EVALUATION		Metric	D - 45	MWF*	C	Comments			
Domain		Metric	Rating	IVI VV F ^	Score	Comments			
Domain 1: Reliability									
	Metric 1:	Methodology	High	\times 1	1	Produced by ATSDR			
D									
Domain 2: Repres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\stackrel{\wedge}{\times} \stackrel{1}{2}$	2	Proces solvent in mfg of drugs, pharmaceuticals, and film coat-			
	1,100110 0.	•	111611	^ 2	-	ings			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old			
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error			
Domain 3: Access	ibility/Clan	i+							
Domain 5. Access	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided			
	1,100110 01	medada completeness	2011			omy results provided			
Domain 4: Variab	ility and U	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]			Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337						
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descrip	otion (Subca	ategory of Use):	Metal Cle	eaning an	d Finisl	hing Solvent		
Total Annual U.S.	. Volume (a	nd percent of PV):	10 percen	t				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliab	Domain 1: Reliability							
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR		
Domain 2: Repres	ontativo							
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	$\overline{2}$	Metal Cleaning and Finishing Solvent		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old		
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error		
Domain 3: Access	ibility/Clar	ity						
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	Only results provided		
		-						
Domain 4: Variab	Domain 4: Variability and Uncertainty				_			
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty		
Overall Quality Determination †			Medium		2.0			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subca	ategory of Use):	Electronic	cs					
		nd percent of PV):	10 percen						
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
D : 1 D !: 1:									
Domain 1: Reliabi	Metric 1:	Mathadalamı	II: od	v 1	1	D I II AMODD			
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Electronics			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old			
	Metric 5:	Sample Size	Medium	\times 1	2	Provided an estimate - uncertain range or error			
Domain 3: Access:	:b:1:4/Cloni								
Domain 5: Access.	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided			
	Metric 0.	Metadata Completeness	LOW	^ 1	- 3	Only results provided			
Domain 4: Variab	ility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination [†]		Medium		2.0					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Atsdr,. 2000. Toxicological profile for methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3982337							
EXTRACTION									
Parameter			Data						
Life Cycle Stage:		Use							
Life Cycle Descrip			Polyureth		n Blowi	ng			
Total Annual U.S.	. Volume (a	nd percent of PV):	10 percen	it					
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability									
	Metric 1:	Methodology	High	\times 1	1	Produced by ATSDR			
Domain 2: Repres	contativo								
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Polyurethane Foam Blowing			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	>20 years old			
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error			
Domain 3: Access	ibility/Clar	itv							
Domain 5. Access	Metric 6:	Metadata Completeness	Low	\times 1	3	Only results provided			
		_							
Domain 4: Variability and Uncertainty					_				
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty			
Overall Quality Determination †			Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Kikuchi E	mi Kikuchi V Hirao M 2011	2 Monitori	ng and A	nalveie	of Solvent Emissions from Metal Cleaning Processes for		
		Process Improvement. Annals of				of Solvent Emissions from Metal Cleaning 1 rocesses for		
Type of Data Source		eports for Data or Information				lease Data;		
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descript	tion (Subca	ategory of Use):	Open Top	o Vapor l	Degreas	ing		
Process Description	n:	,	Yes		Ü			
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabil								
	Metric 1:	Methodology	High	× 1	1	Journal article		
Domain 2: Represe	entative							
<u>*</u>	Metric 2:	Geographic Scope	Medium	$\times 1$	2	Japan		
	Metric 3:	Applicability	High	$\times 2$	2	Open Top Vapor Degreasing		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2011		
	Metric 5:	Sample Size	N/A		N/A	N/A - only process description from this source		
Domain 3: Accessi	bility/Clari	itv						
	Metric 6:	Metadata Completeness	N/A		N/A	N/A - only process description from this source		
Domain 4. V:-l-:	liter and II-	a containte						
Domain 4: Variabi	Metric 7:	· ·	NI / A		NI / A	NI/A		
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - only process description from this source		
Overall Quality De	eterminatio	n^\dagger	High		1.2			
Overall squality De					1.2			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID		Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Facility; Reports for Data or Information Other than Exposure or Release Data; 3827786								
EXTRACTION										
Parameter			Data							
Life Cycle Stage: Total Annual U.S. Volume (and percent of PV):			Manufacture/Import 45,000 to 227,000 tonnes between 1996 and 2006							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ility Metric 1:	Methodology	Low	× 1	3	per NTP, 2001				
Domain 2: Repres										
	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	High	× 2	2	Manufacture/Import of DCM				
	Metric 4: Metric 5:	Temporal Representativeness Sample Size	Medium Low	$\times 2 \times 1$	$\frac{4}{3}$	2001 No information on sample size				
Domain 3: Access		-	Low	× 1	3	No underlying information provided				
Domain 4: Variability and Uncertainty			Low	v 1	9	N. Parada for the Physics of the Phy				
	Metric 7:	Metadata Completeness	LOW	× 1	3	No discussion of variability or uncertainty				
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.1					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	ToxNet Hazardous Substances Data, Bank. 2017. HSDB: Methylene chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3970276								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Import						
Life Cycle Descrip	tion (Subca	ategory of Use):	Import						
		nd percent of PV):	-	illion po	unds pe	er year (1997)			
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabi									
	Metric 1:	Methodology	Low	× 1	3	HSDB, per Chemical Marketing Reporter 1997			
Domain 2: Repres	entative								
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Import			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997			
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size			
Domain 3: Access	ibility/Clari	itv							
	Metric 6:	Metadata Completeness	Low	\times 1	3	No underlying information provided			
Domain 4. V:-1	ilitar and II-	a containte							
Domain 4: Variab		· ·	Low	v 1	9	N. Promise Control 114			
	Metric 7:	Metadata Completeness	LOW	× 1	3	No discussion of variability or uncertainty			
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Low		2.3				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:						stock and molded flexible polyurethane foam industry.
Type of Data Source	. ,	eports for Data or Information (Other than	Exposure	e or Rel	lease Data;
Hero ID	3860546					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	Blowing I	Foam		
Process Descriptio	n:	,	Yes			
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	\times 1	1	EPA Source
Domain 2: Represe	entative					
Domain 2. Tepres	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Blowing Foam
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1996, 22 years old
	Metric 5:	Sample Size	Medium	× 1	2	Gives a broad evaluation of Methylene Chloride in the industry
Domain 3: Accessi	bility/Clar	itx				
Domain 5. Accessi	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.
	Medic 0.	Metadata Completeness	IIIgii	^ 1	1	wen documented.
Domain 4: Variabi	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
0 110 111 15		+	N. 1:		1.0	
Overall Quality De	eterminatio	n'	Medium		1.8	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	ernative control technology docu				
Type of Data Source Facility; I Hero ID 3860356	Reports for Data or Information	Other than	Exposure	e or Rel	lease Data;
EXTRACTION					
Parameter		Data			
Life Cycle Stage:		Use			
Life Cycle Description (Subo	category of Use):	Halogena	ted Degre	easers	
Process Description:		Yes			
Total Annual U.S. Volume (and percent of PV):	232000 to			
Number of Sites:		· ·	40,000 de	egreaser	s in operation.
Batch Size:		varies			
EVALUATION					
Domain	Metric	Rating	MWF^{\star}	Score	Comments
Domain 1. Polishility					
Domain 1: Reliability Metric 1:	Methodology	High	× 1	1	EPA Source
-	3,				
Domain 2: Representative					
Metric 2:	Geographic Scope	High	$\times 1$	1	US
Metric 3:	Applicability	High	$\times 2$	2	Halogenated Degreasers
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1989, 29 years old
Metric 5:	Sample Size	Medium	× 1	2	Gives a broad evaluation of Methylene Chloride in the industry
Domain 3: Accessibility/Cla	rity				
Metric 6:	Metadata Completeness	Medium	\times 1	2	Decently well documented.
Domain 4: Variability and U		-	_		
Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determinati	on^{\dagger}	Medium		1.9	
Crotain Quanty Descriminant	~ 	modium		1.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		M. T 2004. Methylene chloride				
Type of Data Source		eports for Data or Information (Other than	Exposur	e or Rel	ease Data;
Hero ID	3859416					
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	General N	/ // det.hvlene	e Chlori	de Use
Process Description		acegory or obe).	Yes	10011/1011	0 0111011	
		nd percent of PV):	242.6 met	ric tons	(2004)	
	\	,			,	
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabi	:1:+					
Domain 1. Renabi	Metric 1:	Methodology	Medium	× 1	2	Michael T. Holbrook
-		- St				
Domain 2: Repres	entative					
	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	2	General Methylene Chloride Use
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2006, 12 years old
	Metric 5:	Sample Size	Low	× 1	3	General evaluation
Domain 3: Access:	ibility/Clari	itv				
Domain 5. Access.	Metric 6:	Metadata Completeness	Medium	\times 1	2	Decently well documented.
		*				
Domain 4: Variab	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
0 110 11: 15		+) ():		1.0	
Overall Quality D	eterminatio	n'	Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	POLYURI		ICATION (OF AUX		ATION IN THE MANUFACTURE OF FLEXIBLE BLOWING AGENT VOLATILIZATION. Journal of				
Type of Data Source Hero ID		Facility; Reports for Data or Information Other than Exposure or Release Data; 3588566								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Blowing I	Foam						
Process Description		,	Yes							
Total Annual U.S	. Volume (a	nd percent of PV):	5 million	tons						
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	:1:+									
Domain 1. Renab	Metric 1:	Methodology	Medium	× 1	2	No Comment.				
Domain 2: Repres	zentative									
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Blowing Foam				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old				
	Metric 5:	Sample Size	Low	× 1	3	Addresses new ways to reduce waste - unclear what the current state of production is.				
Domain 3: Access	sibility/Clar	ity								
Domain J. Hoods	Metric 6:	Metadata Completeness	Low	\times 1	3	Minimal references -seems much of the authority is coming from the author.				
Domain 4: Variab	vility and II	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.				
Overall Quality D	eterminatio	\mathbf{n}^{\dagger}	Medium		2.2					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:										
Type of Data Source Hero ID	3860551									
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Blowing I	Foam						
Process Description	on:		Yes							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	Domain 1: Reliability									
	Metric 1:	Methodology	High	× 1	1	EPA Source				
Domain 2: Repres	sentative									
Domain 2. Roproc	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Blowing Foam				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1991, 27 years old				
	Metric 5:	Sample Size	Low	× 1	3	Addresses new ways to blow foam that reduces the use of CFCs. $$				
Domain 3: Access	ibility/Clar	itv								
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Decently well documented.				
Domain 4: Variab				_						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.				
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.0					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: 1994. Control of volatile organic comp document.	oound emissic	ons from	batch p	processes – Alternative control techquiues information						
Type of Data Source Facility; Reports for Data or Informatio 3860363	Facility; Reports for Data or Information Other than Exposure or Release Data; 3860363									
EXTRACTION										
Parameter	Data									
Life Cycle Stage:	Use									
Life Cycle Description (Subcategory of Use):	Pharmace	euticals:	Coating	tablets						
Process Description:	Yes			,						
Total Annual U.S. Volume (and percent of PV):	Hypothet	ical: Up	to 100 t	tons per year						
Batch Size:	Hypothet	ical: 250	lbs							
Site Daily Throughput:	Hypothet	ical: Up	to 250 l	lbs						
Possible Physical Form:	Aerosol									
Chemical Concentration:	80 percen	nt DCM								
EVALUATION										
Domain Metric	Rating	MWF*	Score	Comments						
Domain 1: Reliability										
Metric 1: Methodology	High	× 1	1	EPA Source						
Domain 2: Representative										
Metric 2: Geographic Scope	High	\times 1	1	US						
Metric 3: Applicability	Medium	$\times 2$	4	Pharmaceuticals: Coating tablets						
Metric 4: Temporal Representativenes	ss Low	$\times 2$	6	1994, 24 years old						
Metric 5: Sample Size	Low	× 1	3	Merely discusses a process method utilizing Methylene Chloride $$						
Domain 3: Accessibility/Clarity										
Metric 6: Metadata Completeness	Low	\times 1	3	Only results provided						
Domain 4: Variability and Uncertainty										
Metric 7: Metadata Completeness	Low	× 1	3	No Comment.						
Overall Quality Determination [†]	Low		2.3							

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source		ordan, B. ruce C 1994. Memorandum: Transmittal of alternative control technology documents. acility; Reports for Data or Information Other than Exposure or Release Data; 860917								
EXTRACTION Parameter			Data							
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Process Description:		EPA Industry Guidance on VOC reduction No								
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliabil	ity Metric 1:	Methodology	High	× 1	1	EPA				
Domain 2: Represe	entative	O.								
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	Unacceptable	\times 2	8	Recommendations on how to limit VOC emissions in air/water. DCM was 1 of over 100 listed chemical				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1994, 24 years old				
	Metric 5:	Sample Size	N/A		N/A	N/A - no information on DCM				
Domain 3: Accessil	bility/Clari	ity								
		Metadata Completeness	N/A		N/A	N/A - no information on DCM				
Domain 4: Variabil	lity and Ur	ncertainty								
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - no information on DCM				
Overall Quality De	terminatio	n [†]	Unacceptable		4	Metric Mean Score: 2.7.				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Fa	U.S, E. P. A 1996. Solvent study. Facility; Reports for Data or Information Other than Exposure or Release Data; 3861374								
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description Process Description:		tegory of Use):	EPA Solvents Study No						
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabilit	y Ietric 1:	Methodology	High	× 1	1	EPA			
Domain 2: Represen		37							
-	fetric 2:	Geographic Scope	High	× 1	1	US			
	fetric 3:	Applicability	Unacceptable	\times 2	8	Study references DCM in its introduction, but does not focus on it moving forward.			
N	letric 4:	Temporal Representativeness	Low	$\times 2$	6	1996, 22 years old			
N	Ietric 5:	Sample Size	N/A		N/A	N/A - no information on DCM			
Domain 3: Accessibi	lity/Clari	tv							
	letric 6:	Metadata Completeness	N/A		N/A	N/A - no information on DCM			
Domain 4: Variabilit	v and Un	acertainty							
		Metadata Completeness	N/A		N/A	N/A - no information on DCM			
Overall Quality Dete	ermination	n [†]	Unacceptable		4	Metric Mean Score: 2.7.			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Fa	J.S, E. P. A 2008. Control techniques guidelines for fiberglass boat manufacturing materials. Facility; Reports for Data or Information Other than Exposure or Release Data; 1970051								
EXTRACTION Parameter			Data						
Life Cycle Stage: Life Cycle Description Process Description:		tegory of Use):	EPA Fiberglass Boa No	t Guideli	nes				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabilit M	y Metric 1:	Methodology	High	× 1	1	EPA			
		GV							
Domain 2: Represent	tative Ietric 2:	Geographic Scope	High	× 1	1	US			
	Metric 3:	Applicability	Unacceptable	$\times 2$	8	Guideline references DCM, but is not focused on the use of DCM in the workplace.			
N	Ietric 4:	Temporal Representativeness	Medium	$\times 2$	4	2008, 10 years old.			
N	letric 5:	Sample Size	N/A		N/A	N/A - no information on DCM			
Domain 3: Accessibi	lity/Clari	t.v							
	1etric 6:	Metadata Completeness	N/A		N/A	N/A - no information on DCM			
Domain 4: Variabilit	tv and Un	certainty							
		Metadata Completeness	N/A		N/A	N/A - no information on DCM			
Overall Quality Dete	ermination	n [†]	Unacceptable		4	Metric Mean Score: 2.3.			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Fa	cha, 2017. Dichloromethane, Part 2. acility; Reports for Data or Information Other than Exposure or Release Data; 270726								
EXTRACTION									
Parameter			Data						
	Life Cycle Stage: Life Cycle Description (Subcategory of Use):			I					
Process Description:			No						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliability	y								
M	letric 1:	Methodology	High	\times 1	1	European Chemical Association			
Domain 2: Represent	tativo								
-	letric 2:	Geographic Scope	Medium	× 1	2	EU			
	letric 3:	Applicability	Unacceptable	$\times 2$	8	Lists current producers in the EU			
	letric 4:	Temporal Representativeness	Medium	$\times 2$	4	Current information			
M	letric 5:	Sample Size	N/A		N/A	$\mathrm{N/A}$ - only provides lists of producers in EU			
Domain 3: Accessibil	lity/Clarit	v							
	. ,	Metadata Completeness	N/A		N/A	N/A - only provides lists of producers in EU			
T	1 77								
Domain 4: Variability		certainty Metadata Completeness	N/A		N/A	N/A - only provides lists of producers in EU			
		The state of the s	/		/	1711 only provides 1886 of produceds in Ele			
Overall Quality Deter	rmination	ı [†]	Unacceptable		4	Metric Mean Score: 2.5.			

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source Facility; I									
EXTRACTION Parameter		Data							
Life Cycle Stage: Life Cycle Description (Subo Process Description: Total Annual U.S. Volume (Number of Sites:	Use Pharmaceuticals Manufacturing No DCM: unknownProduct: 3000 kg/year 1								
EVALUATION Domain	Metric	Rating	MWF*	Score	Comments				
	11100110	1,	111 11 1	50010	Comment				
Domain 1: Reliability Metric 1:	Methodology	Medium	× 1	2	Upjohn Company				
Domain 2: Representative									
Metric 2:	Geographic Scope	High	\times 1	1	US				
Metric 3:	Applicability	Unacceptable	\times 2	8	Utilizes methylene chloride in an unknown way in the proposed facility				
Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1990, 28 years old				
Metric 5:	Sample Size	N/A		N/A	N/A - no information on DCM				
Domain 3: Accessibility/Cla	rity								
Metric 6:		N/A		N/A	N/A - no information on DCM				
Domain 4. Vaniability and I	Incortainty								
Domain 4: Variability and U Metric 7:	Metadata Completeness	N/A		N/A	N/A - no information on DCM				
Overall Quality Determinati	on [†]	Unacceptable		4	Metric Mean Score: 2.8.				

^{**} Consistent with our Application of Systematic Review in TSCARisk Evaluations document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

^{*} MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

0								
Source Citation: 1999. 33/50 Program: The final record.								
	0, 1				ure or R	Release Data;		
	3800343							
EXTRACTION Parameter			Data					
Parameter			Data					
Life Cycle Stage:			Use					
Life Cycle Descripti	ion (Subca	tegory of Use):	Industr	y-wide us	se			
Process Description	1:		No					
Total Annual U.S. V	Volume (ar	nd percent of PV):	1988: 1	55,419,30	01 lbs/y	ear1996: 68,661,243 lbs/year		
Number of Sites:			1294 co	mpanies				
_								
EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments		
D : 1 D !: 1:1!								
Domain 1: Reliabili		Mathadalamı	High	× 1	1	EPA		
	Metric 1:	Methodology	підп	X 1	1	EPA		
Domain 2: Represer	ntative							
-	Metric 2:	Geographic Scope	High	\times 1	1	US		
I	Metric 3:	Applicability	Low	\times 2	6	Addresses 1,294 companies who voluntarily reduced emissions, but only on total emissions.		
	Metric 4:	Temporal Representativeness	Low	\times 2	6	$1999,\ 19$ years old. Does not address operations, equipment, or worker activities		
	Metric 5:	Sample Size	Low	× 1	3	${\rm N/A}$ - only # of companies from this source		
Domain 2. Ail	::1:4/C1:	4						
Domain 3: Accessib	omty/Clari Metric 6:	Metadata Completeness	High	× 1	1	Data sources, methods, and assumptions are clearly reported.		
	MIGHIC O.	Metadata Completeness	THEIL	^ 1	1	Data sources, methods, and assumptions are clearly reported.		
Domain 4: Variabili	ity and Un	acertainty						
	Metric 7:	Metadata Completeness	Low	\times 1	3	Not addressed		
Overall Quality Det	termination	n^{\dagger}	Low		2.3			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	U.S, E. P.	A 1977. Control of volatile org	ganic emis	ssions fro	m solve	ent metal cleaning.			
Type of Data Source		Facility; Reports for Data or Information Other than Exposure or Release Data;							
Hero ID	3827321								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	tion (Subce	ategory of Use).	Degreas	ing					
Process Description		negory or ose).	Yes	ning					
Troccss Description.									
EVALUATION	EVALUATION								
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Demois 1. Delickilite									
Domain 1: Reliabi	Metric 1:	Mathadalam	III: mb	v 1	1	TDA.			
	Metric 1:	Methodology	High	× 1	1	EPA			
Domain 2: Repres	entative								
•	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	Low	$\times 2$	6	Discusses the function/design of degreasers used in industry.			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1977, 41 years old			
	Metric 5:	Sample Size	Low	× 1	3	N/A - only process description from this source			
Damain 2. Access	:la:1:4/Clam	14							
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	NI/A			
	Metric 0.	Metadata Completeness	LOW	X 1	<u>.</u>	N/A - only process description from this source			
Domain 4: Variab	ility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	$\mathrm{N/A}$ - only process description from this source			
		+	_						
Overall Quality D	eterminatio	n'	Low		2.6				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Hearne, F. T., Grose, F., Pifer, J. W., Friedlander, B. R., Raleigh, R. L 1987. Methylene chloride mortality study: Doseresponse characterization and animal model comparison. Journal of Occupational Medicine.								
0.2	Facility; R 730524	eports for Data or Information (Other than	Exposur	e or Rei	lease Data;			
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descript	ion (Subca	ategory of Use):	manufact	ture of ce	llulose t	riacetate film			
Process Description	n:		Yes						
Number of Sites:			1						
Operating Days pe		Batches per Day:	24 hr / 365						
Possible Physical F			vapor, lic						
Chemical Concentr	Chemical Concentration:				rkroom				
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1: Reliabil	litz								
	Metric 1:	Methodology	High	× 1	1	Lists out different methods used over time and validates their accuracy in cited source			
Domain 2: Represe	entative								
•	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that uses Methylene Chloride			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1987, 31 years old			
	Metric 5:	Sample Size	Low	× 1	3	Not characterized			
Domain 3: Accessi	bility/Clar	ity							
	Metric 6:	Metadata Completeness	High	\times 1	1	Data sources, methods, and assumptions are clearly reported.			
Domain 4: Variabi	lity and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed			
Overall Quality De	eterminatio	${f n}^{\dagger}$	Medium		1.9				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		A 1993. Locating and estimat								
Type of Data Source Hero ID	Facility; R 3970168	Facility; Reports for Data or Information Other than Exposure or Release Data; 3970168								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Manufact	ure						
Life Cycle Descrip	tion (Subca	ategory of Use):	Methylen		le Manu	ufacture				
Process Description		, , , , , , , , , , , , , , , , , , ,	Yes							
Number of Sites:			5							
ENALLIAMION										
EVALUATION		36	D) (IIII)+	G.					
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ility									
	Metric 1:	Methodology	High	× 1	1	Uses EPA and other trusted sources				
Domain 2: Repres	sentative									
	Metric 2:	Geographic Scope	High	$\times 1$	1	US				
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that uses Methylene Chloride				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1993, 25 years old				
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source				
Domain 3: Access	ibility/Clar	itz								
Domain 5. Necess	Metric 6:	Metadata Completeness	High	\times 1	1	Data sources, methods, and assumptions are clearly reported.				
D	:1:4 1 TT									
Domain 4: Variab			Τ	v. 1	9	N - 433				
	Metric 7:	Metadata Completeness	Low	× 1	3	Not Addressed				
Overall Quality D	eterminatio	n^{\dagger}	Medium		1.9					
5 . 32332 3 333110y 2										

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	2008. Bac Waste Lan	_	t for Updat	ting AP4	2 Secti	on 2.4 for Estimating Emissions from Municipal Solid
Type of Data Source Hero ID	Facility; R 1263807	eports for Data or Information (Other than	Exposur	e or Re	lease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Disposal			
Life Cycle Descrip	otion (Subca	ategory of Use):	Landfill C	Gas		
Process Description		, , ,	No			
Number of Sites:			109			
Chemical Concent	tration:		Average:	6.15 ppn	nMax: 4	41.2 ppmMin: .0054ppm
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1:+					
Domain 1. Renao	Metric 1:	Methodology	Medium	× 1	2	\ensuremath{EPA} Source - unclear which methods were used to gather DCM result, however.
Domain 2: Repres	contativo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	$\times 2$	4	Facility that is indirectly associated with Methylene Chloride
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2008, 10 years old.
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 2. Agass	ibility /Class	:+				
Domain 3: Access	Metric 6:	Metadata Completeness	Medium	× 1	2	Generally well documented, though methods used was unclear for certain data sets.
D 4. 37 . 1	:1:4 1 TT					
Domain 4: Variab	Metric 7:	Metadata Completeness	Medium	× 1	2	Degree of uncertainty is presented in the paper, thought the measurements of DCM are not well addressed.
Overall Quality Determination †			Medium		2.0	

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		thyl chloride via oxyhydrochlor ental assessment.	ination of	methane:	A bui	ilding block for chemicals and fuels from natural gas.
Type of Data Source Hero ID	Facility; R 2530707	eports for Data or Information (Other than	Exposur	e or Rel	lease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Manufact	1120		
Life Cycle Descrip	otion (Subce	ategory of Use).	Methyl C		// Janufac	ture
Process Description		negory or ose).	Yes	morrae n	Tanuiac	ture
		nd percent of PV):		: 900lbs/	hr Meth	hyl Chloride,322.5 lbs Methylene Chloride.
Number of Sites:				,		
Possible Physical	Form:		vapor, liq	uid		
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1:+					
Domain 1. Renab	Metric 1:	Methodology	High	× 1	1	DOE Environmental Assessment
Domain 2: Repres	sentative					
Bolliam 2. Roproc	Metric 2:	Geographic Scope	High	$\times 1$	1	US
	Metric 3:	Applicability	High	$\times 2$	$\overset{-}{2}$	Facility that manufactures Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1996, 22 years old
	Metric 5:	Sample Size	Low	\times 1	3	${\rm N/A}$ - only # of sites from this source
Domain 3: Access	ibility /Clan	:+				
Domain 5. Access	Metric 6:	Metadata Completeness	Medium	× 1	2	Few references, but written from a first-hand authority.
	wiculic O.	metadata Compreteness	Micufulli	^ 1		rew references, but written from a mst-hand authority.
Domain 4: Variab	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	Not addressed
Overall Quality D	eterminatio	n^{\dagger}	Medium		2.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	U.S, E. P. ceutical pr		ies: Control	l of volati	ile orga	nic emissions from manufacture of synthesized pharma-				
Type of Data Source Hero ID		Facility; Reports for Data or Information Other than Exposure or Release Data; 3970050								
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact	ure of Ph	armace	enticals				
Process Description			Yes							
Number of Sites:			26+							
Batch Size:			2000-1100	00 liters						
Possible Physical Form:			vapor, liq	uid						
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliab	ility									
	Metric 1:	Methodology	High	× 1	1	EPA document				
Domain 2: Repres	entative									
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US				
	Metric 3:	Applicability	Medium	$\times 2$	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions				
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1978, 40 years old				
	Metric 5:	Sample Size	Low	× 1	3	${\rm N/A}$ - only # of sites from this source				
Domain 3: Access	ibility/Clar	itv								
Domain 9. Access	Metric 6:	Metadata Completeness	Medium	\times 1	2	Majority of metadata present				
D	.1 1.77									
Domain 4: Variab		•	Т	1	9	N				
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.				
Overall Quality D	eterminatio	${f n}^{\dagger}$	Medium		2.2					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

d	locument	for proposed standards.			_	ction of flexible polyurethane foam – Basis and purpose			
	Facility; Reports for Data or Information Other than Exposure or Release Data; 3970122								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:		Use							
Life Cycle Description	on (Subca	tegory of Use):	Slabstock	Foam					
Process Description:	:		Yes						
Total Annual U.S. V	Volume (a:	nd percent of PV):	16568 ton	s/yr HA	P				
Number of Sites:			78						
Batch Size:			4'x8'x50',	¹ 100'					
Possible Physical Form:			vapor, liq	uid					
EVALUATION									
Domain		Metric	Rating	\mathbf{MWF}^{\star}	Score	Comments			
Domain 1: Reliabili	tre								
	Metric 1:	Methodology	High	× 1	1	EPA document			
Domain 2: Represer	ntative								
-	Metric 2:	Geographic Scope	High	\times 1	1	US			
	Metric 3:	Applicability	High	× 2	$\overline{2}$	Workplace that uses Methylene Chloride			
N	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1996, 22 years old			
N	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source			
Domain 3: Accessib	ility/Clari	itv							
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present			
Domain 4: Variabili	tv and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.			
Overall Quality Det	erminatio	${ m n}^{\dagger}$	Medium		2.0				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	,	A., 1996. Hazardous air pollutator proposed standards.	nt emissions	s from th	e produ	ction of flexible polyurethane foam – Basis and purpose				
Type of Data Source Hero ID	Facility; R 3970122	Facility; Reports for Data or Information Other than Exposure or Release Data; 3970122								
EXTRACTION										
Parameter			Data							
I:f- Cl- Ct			Use							
Life Cycle Stage: Life Cycle Descrip	tion (Subar	otogory of Uso):	Molded F	loom						
Process Description		itegory or ose).	Yes	Oam						
		nd percent of PV):	3186 tons	/vr HAP	•					
Number of Sites:	Total Annual U.S. Volume (and percent of PV): Number of Sites:			/ / 11111						
Operating Days pe	er Year and	Batches per Day:	$228 \\ 250$							
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliabi	litz									
Domain 1. Renabi	Metric 1:	Methodology	High	× 1	1	EPA document				
Domain 2: Repres	entative Metric 2:	G 1: G	TT: 1	1	1	***				
	Metric 2: Metric 3:	Geographic Scope Applicability	High High	$\times 1 \times 2$	$\frac{1}{2}$	US				
	Metric 4:	Temporal Representativeness	Low	$\times 2 \times 2$	6	Workplace that uses Methylene Chloride 1996, 22 years old				
	Metric 5:	Sample Size	Low	$\begin{array}{c} \times 2 \\ \times 1 \end{array}$	3	N/A - only # of sites from this source				
	1,100,110 0,	Semple sine	20.1			1,712 only 17 of blood from only boarde				
Domain 3: Access	ibility/Clar	ity								
	Metric 6:	Metadata Completeness	Medium	\times 1	2	Majority of metadata present				
Domain 4. V1	:1:4 and TT-	o containte								
Domain 4: Variability and Uncertainty Metric 7: Metadata Completeness			Low	\times 1	3	No Comment.				
	MENTE /:	Metadata Completeness	LOW	^ 1	<u>ა</u>	No Comment.				
Overall Quality De	eterminatio	n^{\dagger}	Medium		2.0					
Overan Quanty D	Cociminatio	11	MEGINIII		2.0					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	D.	C11 : 4 1 C 1 4 A : 4:	1000	D 11		A CORADOM		
Source Citation:		orht sea: Dichloromethane.	on. 1999.	Euro cni	or risk	assessment for the marine environment, OSPARCOM $$		
Type of Data Source Hero ID	Facility; Reports for Data or Information Other than Exposure or Release Data; 3982130							
EXTRACTION								
Parameter			Data					
Life Cycle Stage:			Manufact	ure				
Life Cycle Descrip	tion (Subca	ategory of Use):	Manufact	ure				
Process Descriptio		,	No					
Total Annual U.S.	Volume (a	nd percent of PV):	138000 to	ns per ye	ear			
Number of Sites:			8					
Possible Physical Form:			liquid, va	por				
EVALUATION								
Domain		Metric	Rating	MWF*	Score	Comments		
Domain 1: Reliabi	lity							
Domain 1. Italian	Metric 1:	Methodology	Low	× 1	3	No discussion about where the metrics came from		
Domain 2: Represe	entative							
	Metric 2:	Geographic Scope	Medium	$\times 1$	2	EU		
	Metric 3:	Applicability	High	$\times 2$	2	Facilities that produce Methylene Chloride		
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1999, 19 years old.		
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source		
Domain 3: Accessi	bility/Clar	ity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Sources are documented, but it is unclear how they are used and what they relate to.		
Domain 4: Variabi	ility and Ur	ncertainty						
Domain I. Variable	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.		
Overall Quality De	eterminatio	\mathbf{n}^{\dagger}	Low		2.4			

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Ec,. 2017.	Rapid alert system for dangero	us non-food	product	s: Brak	e caliper spray paint.			
Type of Data Source	. ,	Facility; Reports for Data or Information Other than Exposure or Release Data;							
Hero ID	3982350								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subce	atogory of Uso):	Consumer	r Heo					
Process Description		negory or ose).	No	USE					
Chemical Concent			0.63						
Chemical Concent	racion.		0.00						
EVALUATION									
Domain		Metric	Rating	MWF*	Score	Comments			
Domain 1: Reliab	:1:+								
Domain 1. Renau	Metric 1:	Methodology	Low	× 1	3	No method given.			
	Metric 1.	Wethodology	LOW	^ 1	- 3	No method given.			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	Medium	\times 1	2	EU			
	Metric 3:	Applicability	Low	$\times 2$	6	Consumer product similar to one used in industry			
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2017			
	Metric 5:	Sample Size	Low	\times 1	3	N/A - only provided conc in consumer product			
Domain 2. Access	ibilita /Clani								
Domain 3: Access	Metric 6:	Metadata Completeness	Low	× 1	3	N/A - only provided conc in consumer product			
	Metric 6:	Metadata Completeness	LOW	X 1	<u> </u>	N/A - only provided conc in consumer product			
Domain 4: Variab	ility and Ur	ncertainty							
	Metric 7:	Metadata Completeness	Low	\times 1	3	None addressed.			
Overall Quality D	eterminatio	n^{\dagger}	Low		2.4				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		of Minnesota, Duluth. 1997. regulatory compliance burdens w				ninates methylene chloride based adhesives: Substitutes tion.
Type of Data Source Hero ID	Facility; R 3982444	eports for Data or Information (Other tha	n Expos	ure or R	delease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	Foam F	abricatio	n	
Process Description	n:		Yes			
Total Annual U.S.	Volume (a	nd percent of PV):	4,170 g higher)	al of MO	C based	adhesives (@65 percent MC concentration or
Number of Sites:			1			
Possible Physical I	Form:		liquid, v	vapor		
Chemical Concentr	ration:		> 65 pe	ercent		
EVALUATION						
Domain		Metric	Rating	MWF^{\star}	Score	Comments
Domain 1: Reliabi	lity					
	Metric 1:	Methodology	Low	× 1	3	No method given.
Domain 2: Represe	entative					
	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1997, 21 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites and conc from this source
Domain 3: Accessi	bility/Clari	itv				
	Metric 6:	Metadata Completeness	Low	× 1	3	N/A - only # of sites and conc from this source
Domain 4: Variabi	lity and Ur	ocertainty				
	Metric 7:	Metadata Completeness	Low	× 1	3	${\rm N/A}$ - only # of sites and conc from this source
Overall Quality De	Overall Quality Determination [†]				2.3	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Type of Data Source		Oecd,. 2011. SIDS initial assessment profile: Dichloromethane (methylene chloride). Facility; Reports for Data or Information Other than Exposure or Release Data; 3808975									
EXTRACTION											
Parameter			Data								
Life Cycle Stage: Life Cycle Description (Subcategory of Use): Process Description: Total Annual U.S. Volume (and percent of PV):			Manufacture Methylene Chloride Manufacture Yes 100,000 tons in EU (2009). Worldwide volume is 764,000-814,000 metric tonnes								
EVALUATION											
Domain		Metric	Rating	MWF^{\star}	Score	Comments					
Domain 1: Reliabil	lity Metric 1:	Methodology	Low	× 1	3	No documentation					
D : 0 D	:										
Domain 2: Represe	Metric 2:	Geographic Scope	Medium	× 1	2	EU					
	Metric 3:	Applicability	Medium	$\times 2$	$\frac{2}{4}$	Overview of industry that produces methylene chloride, but no specific workplace					
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2011, 7 years old					
	Metric 5:	Sample Size	Low	× 1	3	N/A - only PV provided					
Domain 3: Accessi	bility/Clari Metric 6:	ity Metadata Completeness	Low	× 1	3	Not documented					
Domain 4: Variabi	lity and Ur Metric 7:	ncertainty Metadata Completeness	Low	× 1	3	None addressed.					
Overall Quality De	Overall Quality Determination [†]				2.2						

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Ruder, A Sciences.	2006. Potential health effects of	of occupation	nal chlor	rinated	solvent exposure. Annals of the New York Academy of
Type of Data Source Hero ID		eports for Data or Information	Other than	Exposur	e or Rel	lease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	tion (Subca	ategory of Use):	US DCM	consumr	otion.	
Process Description			No			
Total Annual U.S.	Volume (a	nd percent of PV):	231,000 m	netric ton	ıs (1998	
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
D ' 1 D l' 1	11.4					
Domain 1: Reliabi	Metric 1:	Methodology	High	× 1	1	NIOSH document and sources cited.
	MICHIC 1.	Wethodology	111811	× 1		WOSH document and sources cited.
Domain 2: Repres	entative					
1	Metric 2:	Geographic Scope	High	\times 1	1	US
	Metric 3:	Applicability	Medium	\times 2	4	Overview of industry that produces methylene chloride, but no specific workplace
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2006, 12 years old
	Metric 5:	Sample Size	Low	\times 1	3	N/A - only PV provided
Domain 3: Access	:b::l:+/Clani					
Domain 5: Access	Metric 6:	Metadata Completeness	High	× 1	1	Clearly documented sources.
	Medile 0.	Metadata Completeness	111511	× 1		Cicary documented sources.
Domain 4: Variab	ility and Ur	ncertainty				
	Metric 7:	Metadata Completeness	Low	\times 1	3	None addressed.
Overall Quality Determination †			Medium		1.9	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

	Niosh,. 199 Cincinnati		Control of	methylen	e chlorie	de in furniture stripping at Colonial Furniture Stripping,				
	Facility; Reports for Data or Information Other than Exposure or Release Data; 3809453									
EXTRACTION										
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descript	ion (Subca	ategory of Use):	Furniture	Strippin	g					
Process Description			Yes	T.	0					
Number of Sites:			1							
Chemical Concentr	ation:		72 percen	t DCM b	y weigh	nt				
EVALUATION										
Domain		Metric	Rating	MWF*	Score	Comments				
Domain 1: Reliabil	ity									
	Metric 1:	Methodology	High	\times 1	1	NIOSH 1005				
D : 0 D										
Domain 2: Represe		G 1: G	TT: 1	4	-	***				
	Metric 2: Metric 3:	Geographic Scope	High	$\begin{array}{c} \times \ 1 \\ \times \ 2 \end{array}$	$\frac{1}{2}$	US				
	Metric 3: Metric 4:	Applicability Temporal Representativeness	High Low	$\times 2 \times 2$	6	Workplace that uses Methylene Chloride 1990, 28 years old				
	Metric 5:	Sample Size	Medium	× 2 × 1	2	Reasonable well characterized.				
	Metric 5.	Sample Size	Medium	X 1		Reasonable well characterized.				
Domain 3: Accessi	bility/Clari	itv								
	Metric 6:	Metadata Completeness	Medium	$\times 1$	2	Reasonable well documented.				
Domain 4: Variabi	lity and Ur	ncertainty								
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.				
			M - 1:		1.0					
Overall Quality De	eterminatio	n'	Medium		1.9					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation: Type of Data Source Hero ID	U.S, E. P. A 2017. Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Methylene Chloride. Facility; Reports for Data or Information Other than Exposure or Release Data; 3986757									
EXTRACTION	5500151									
Parameter			Data							
Life Cycle Stage:			Use							
Life Cycle Descrip		ategory of Use):	Manufact	ure and l	Use					
Process Description		nd percent of PV):	Yes	n 806 388	lbe201	13:230,498,027 lbs2014: 248,241,495 lbs2015:				
Total Allitual C.S.	. vorume (a	nd percent of 1 v).	263,971,49		108201	15.250,450,027 1552014. 240,241,455 1552015.				
Number of Sites:			10							
EVALUATION										
Domain		Metric	Rating	MWF^{\star}	Score	Comments				
Domain 1: Reliab	ilita									
Domaii 1. Itenao.	Metric 1:	Methodology	High	× 1	1	Office of Chemical Safety and Pollution Prevention (OCSPP) Report				
Domain 2: Repres	sentative									
Domain 2. Repres	Metric 2:	Geographic Scope	High	\times 1	1	US				
	Metric 3:	Applicability	Medium	\times 2	4	Overview of industry that produces methylene chloride, but no specific workplace $$				
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2017, 1 year old				
	Metric 5:	Sample Size	High	× 1	1	Well characterized				
Domain 3: Access	ibility/Clar	itv								
Domain 5. Heeess	Metric 6:	Metadata Completeness	High	\times 1	1	Well documented.				
Domain 4: Variab		ncertainty Metadata Completeness	Medium	v 1	9	N. d. and P. et I.				
	Metric 7:	Metadata Completeness	Medium	× 1	2	Not applicable				
Overall Quality D	eterminatio	n^{\dagger}	High		1.3					
C. Crain equality D					1.0					

 $^{^{\}star}$ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		7. SPIN substances in preparati							
Type of Data Source	. ,	eports for Data or Information	Other than	Exposur	e or Rel	lease Data;			
Hero ID	3981130								
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Manufact	ure and	Use				
Life Cycle Descrip	otion (Subca	ategory of Use):	Manufact						
Process Description		acegory or elec).	No	are arra	0.00				
•									
EVALUATION									
Domain		Metric	Rating	MWF^{\star}	Score	Comments			
Domain 1. Daliah	D. J. A. D. V. L. W.								
Domain 1: Reliab	Metric 1:	Methodology	High	× 1	1	SPIN: Substances in Preparations in Nordic Countries			
-	Medic 1.	Wethodology	IIIgii	× 1	1	SFIN: Substances in Freparations in Nordic Countries			
Domain 2: Repres	sentative								
•	Metric 2:	Geographic Scope	Medium	\times 1	2	EU/Nordic Countries			
	Metric 3:	Applicability	Medium	$\times 2$	4	Overview of industry that uses Methylene Chloride.			
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2017, 1 year old			
	Metric 5:	Sample Size	High	× 1	1	Well characterized			
D ' 9 A	.1 .1 /61	••							
Domain 3: Access	- /		т	1	0				
	Metric 6:	Metadata Completeness	Low	× 1	3	Database System - not sure where data is being pulled from based on pdf screen capture.			
Domain 4: Variab									
	Metric 7:	Metadata Completeness	Low	× 1	3	Not applicable			
0 110 111 15									
Overall Quality D	eterminatio	on'	Medium		1.8				
-									

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

G G:	TZ: 1, O:1	D 1 1: (CI : 1 T	1 1	0011 F		0 : 0		
Source Citation: Type of Data Source		ner Encyclopedia of Chemical Te eports for Data or Information (
Hero ID	2990975	eports for Data of Information C	Other tha	ii Exposi	ure or n	telease Data,		
EXTRACTION								
Parameter			Data					
- I di difficiel			Dava					
Life Cycle Stage:			Process	ing				
Life Cycle Descrip		tegory of Use):	Process	ing as a	Reactan	at .		
Process Descriptio	n:		Yes					
EVALUATION								
Domain		Metric	Rating	MWF^{\star}	Score	Comments		
Domain 1: Reliabi			*** 1	_	_			
	Metric 1:	Methodology	High	× 1	1	Kirk Othmer		
Domain 2: Repres	entative							
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US		
	Metric 3:	Applicability	High	$\times 2$	2	Processing as a reactant		
	Metric 4:	Temporal Representativeness	High	$\times 2$	2	2011		
	Metric 5:	Sample Size	N/A		N/A	N/A - process description		
Domain 3: Accessi		-	DT / A		DT / A			
	Metric 6:	Metadata Completeness	N/A		N/A	N/A - process description		
Domain 4: Variabi	ility and Ur	ocertainty						
Domain 4. Variable	•	Metadata Completeness	N/A		N/A	N/A - process description		
		A ***	/			,		
Overall Quality De	eterminatio:	\mathbf{n}^{\dagger}	High		1.0			
~			3					

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:	Occupational Safety and Health Adminstration (OSHA). 1998. Methylene Chloride Facts No. 9 - Suggested Work Practices for Cold Degreasing and Other Cold Cleaning Operations.								
Type of Data Source Hero ID		eports for Data or Information			e or Re	lease Data;			
EXTRACTION									
Parameter			Data						
Life Cycle Stage:			Use						
Life Cycle Descrip	otion (Subca	ategory of Use):		reasing a	nd Oth	er Cold Cleaning:			
Process Description		7	No	, 0					
Number of Sites:			23717						
EVALUATION									
Domain		Metric	Datina	MWF*	Caana	Comments			
Domain		Metric	Rating	M W F ^	Score	Comments			
Domain 1: Reliab	ility								
Domain IV Idenas	Metric 1:	Methodology	High	\times 1	1	OSHA			
Domain 2: Repres	sentative								
Bomain 2. Ropros	Metric 2:	Geographic Scope	High	$\times 1$	1	US			
	Metric 3:	Applicability	High	$\times 2$	2	Vapor Degreasing and Cold Cleaning			
	Metric 4:	Temporal Representativeness	Low	$\times 2$	6	1998			
	Metric 5:	Sample Size	Low	× 1	3	only provides estimated number of sites			
Domain 3: Access	ibility/Clar	ity							
Domain 6. Hocess	Metric 6:	Metadata Completeness	Low	\times 1	3	Only results provided			
Domain 4: Variab	ility and II.	agartainty							
Domain 4. Variati		Metadata Completeness	Low	× 1	3	does not address variability			
Overall Quality D	otomminatio	n†	Medium	<u> </u>	2.1				
Overall Quality D	eterminatio	ш.	Medium		Z.1				

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .

Source Citation:		ute for Research and Technical es to toxic cleanup solvents.	Assistance	(IRTA)	. 2006.	Protecting the health of lithographic printers - Safer
Type of Data Source Hero ID		eports for Data or Information	Other than	Exposur	e or Re	lease Data;
EXTRACTION						
Parameter			Data			
Life Cycle Stage:			Use			
Life Cycle Descrip	otion (Subca	ategory of Use):	Lithograp	hic Prin	ting	
Process Description		,	Yes		J	
EVALUATION						
Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliab	:1:4					
Domain 1. Renab	Metric 1:	Methodology	High	× 1	1	Institute for Research and Technical Assistance (IRTA)
Domain 2: Repres	contativo					
Domain 2. Repres	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	$\times 2$	2	Lithographic Printing
	Metric 4:	Temporal Representativeness	Medium	$\times 2$	4	2006
	Metric 5:	Sample Size	N/A		N/A	N/A - process description
Domain 3: Access	ibility/Clar	itv				
Domain 5. Access	Metric 6:	Metadata Completeness	N/A		N/A	N/A - process description
					·	
Domain 4: Variab		· ·	DT / A		37/4	
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - process description
Overall Quality D	Overall Quality Determination [†]				1.3	
Overan Quanty D	Cocriminatio	.11	High		1.0	

^{*} MWF = Metric Weighting Factor † If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3 .