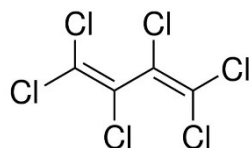


Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal:

Hexachlorobutadiene

CASRN: 87-68-3



August 2017

Support document
for Docket EPA-HQ-OPPT-2016-0738

This document provides a preliminary public summary of available information collected by EPA's Office of Pollution Prevention and Toxics (OPPT) in the Office of Chemical Safety and Pollution Prevention (OCSPP) on the manufacturing (including importing), processing, distribution in commerce, use, and disposal of this chemical. This is based on existing data available to EPA, including information collected under the Chemical Data Reporting rule, Toxics Release Inventory (if available), information from other Agency databases, other U.S. Government agencies, publicly available information from states, and a review of published literature. In addition, the document includes information reported to EPA by producers and users of the chemical in the United States and in other countries.

This preliminary use information and any additional use information received in the docket by December 9, 2017, will inform efforts to identify, under section 6(h)(1)(B) of the Toxic Substances Control Act (TSCA), whether exposure to this chemical is likely, under the conditions of use, either to the environment, the general population, or to a potentially exposed or susceptible subpopulation identified by EPA. The information will also inform any risk management efforts following the exposure and use assessment under TSCA section 6(h)(1)(B).

Mention of trade names in this document does not constitute endorsement by EPA. To verify products or articles containing this chemical currently in commerce, EPA has identified several examples. Any lists are provided for informational purposes only. EPA and its employees do not endorse any of the products or companies.

This document does not contain confidential business information (CBI).

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Docket: EPA-HQ-OPPT-2016-0738

MANUFACTURING, PROCESSING, DISTRIBUTION, USE AND DISPOSAL

1. Manufacturing (Including Importing)

Hexachlorobutadiene (HCBD) is primarily generated as a by-product of the manufacture of chlorinated hydrocarbons, particularly perchloroethylene, trichloroethylene, and carbon tetrachloride, but it can also be produced during magnesium manufacturing via electrolysis^{1,2}. According to recent reports to the UN Environmental Programme, HCBD does not appear to be intentionally manufactured in Europe, Japan, Canada, or the United States. Intentional production in Europe ceased as early as the late 1970s; in various other parts of the world, production of HCBD has been restricted or banned in subsequent years; however, the chemical continues to be manufactured as a byproduct of chemical manufacturing³.

No data was submitted by manufacturers (including importers) under the Chemical Data Reporting (CDR) rule for the 2016 reporting period^{4,5}.

For the 2015 Toxics Release Inventory (TRI), 14 facilities submitted reports for HCBD⁶. Of these, 9 facilities reported manufacture in the United States, 0 reported import, 5 reported processing, and 9 reported other uses⁷. All 9

¹ US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003). https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

² United Nations Environmental Programme, Persistent Organic Pollutants Review Committee, *Risk Management Evaluation on Hexachlorobutadiene* (Rome: Persistent Organic Pollutants Review Committee, 2013). <http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-POPRC.9-13-Add.2.English.pdf>

³ United Nations – Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, *Draft technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with hexachlorobutadiene* (Meeting in Nairobi, Kenya: United Nations Environmental Programme, 2016).

⁴ Manufacturers (including importers) are required to report under CDR if they meet certain production volume thresholds, generally 25,000 lb or more of a chemical substance at any single site. Reporting is triggered if the annual reporting threshold is met during any of the calendar years since the last principal reporting year. In general, the reporting threshold remains 25,000 lb per site. However, a reduced reporting threshold (2,500 lb) now applies to chemical substances subject to certain TSCA actions. <https://www.epa.gov/chemical-data-reporting/how-report-under-chemical-data-reporting>

⁵ Manufacture in the context of CDR means to manufacture, produce, or import for commercial purposes. Manufacture includes the extraction, for commercial purposes, of a component chemical substance from a previously existing chemical substance or complex combination of chemical substances. (40 CFR 711.3) https://www.epa.gov/sites/production/files/2015-12/documents/cdr_fact_sheet_importers_final_dec2015_0.pdf

Similarly, the term “manufacture” in the context of TRI means to produce, prepare, compound, or import an EPCRA Section 313 chemical. The term “manufacture” also includes coincidental production of an EPCRA Section 313 chemical (e.g., as a byproduct or impurity) as a result of the manufacture, processing, otherwise use or disposal of another chemical or mixture of chemicals. <https://www.epa.gov/sites/production/files/documents/ry2012rfi.pdf>

⁶A facility must report to the TRI program if it meets all three of the following criteria: 1) is in a specific industry sector, 2) employs 10 or more full-time equivalent employees, and 3) manufactures, processes, or otherwise uses a [TRI-listed chemical](#) in quantities above applicable threshold levels for a given chemical in a given year. <https://www.epa.gov/toxics-release-inventory-tri-program/basics-tri-reporting>

⁷ The term “process” in the context of CDR and TRI means the preparation of a chemical substance or mixture, after its manufacture, for distribution in commerce—

(A) in the same form or physical state as, or in a different form or physical state from, that in which it was received by the person so preparing such substance or mixture, or

facilities that reported manufacturing and 4 that reported processing are in the chemical manufacturing industry (NAICS codes 325199, 325180, and 325211). One facility that reported processing and 3 that reported use are in the hazardous waste industry (NAICS codes 562211 and 562213). Two facilities that reported use are in the cement manufacturing industry (NAICS code 327310). The facilities generated 10,619,094 lbs. of waste including 2,311 lbs. released to air and 10,278,244 lbs. treated on site. For more information, see Unit 6.

Manufacturing Process

Various methods for HCBd synthesis have been described in two patents^{8,9}. HCBd can be directly synthesized through the chlorination of butadiene or butane or produced as a by-product of chlorinated hydrocarbon manufacturing, including perchloroethylene, trichloroethylene, and carbon tetrachloride. It appears that HCBd, generated as a by-product during the synthesis of other compounds of interest, may be recovered or recycled for commercial purposes¹⁰.

2. Processing

HCBd may be processed for use as:

- Plastic additives¹¹
- Protective coatings¹²
- Prepared in solvent as analytical standards¹³
- Part of the recovery system for chlorine containing gases at chlorine plants¹⁴
- Chemical intermediates in the production of rubber, chlorofluorocarbons, and lubricants¹⁵

(B) as part of an article containing the chemical substance or mixture.

<http://uscode.house.gov/view.xhtml?path=/prelim@title15/chapter53&edition=prelim>

The term “otherwise use” under TRI means any use of an EPCRA Section 313 chemical, including an EPCRA Section 313 chemical contained in a mixture or other trade name product or waste, that is not covered by the terms manufacture or process. See the definition of “otherwise use” for additional details on applicability of otherwise use with regard to disposal, stabilization, and treatment for destruction. https://www.epa.gov/sites/production/files/2016-01/documents/ry_2015_tri_reporting_forms_and_instructions.pdf

⁸ <http://www.google.com/patents/US2454820>

⁹ <http://www.google.com/patents/US2034292>

¹⁰ Lecloux A. 2004: Hexachlorobutadiene – Sources, environmental fate and risk characterization, Science Dossier, Euro Chlor. <http://www.eurochlor.org/media/14939/sd5-hexachlorobutadiene-final.pdf>

¹¹ Chemstock, *Hexachloro-1,3-Butadiene* (Hackettstown, New Jersey: Chemstock, 2017).

<http://www.chemstock.com/product/hexachloro-13-butadiene/>

¹² State of Washington – Department of Ecology, *Children’s Safe Product Act Reported Data* (Lacey, Washington: State of Washington, 2017).

<https://fortress.wa.gov/ecy/cspareporting/Reports/ReportViewer.aspx?ReportName=ChemicalReportByCASNumber> Select CAS Number: 87-68-3.

¹³ Sigma-Aldrich, *Hexachloro-1,3-butadiene PESTANAL®*, analytical standard (St. Louis: Sigma Aldrich Co. LLC).

<http://www.sigmaaldrich.com/catalog/product/sial/45525?lang=en®ion=US>

¹⁴ United Nations Environmental Programme, Persistent Organic Pollutants Review Committee, *Risk Management Evaluation on Hexachlorobutadiene* (Rome: Persistent Organic Pollutants Review Committee, 2013).

<http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-POPRC.9-13-Add.2.English.pdf>

¹⁵ US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003).

https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

3. Products and Articles

EPA identified the following types of products based on a search of available sources for products containing HCB. This list is provided for informational purposes only. EPA and its employees do not endorse any of the products or companies.

In addition to the items in Table 1 below, HCB has been reported by manufacturers as a contaminant in various children's products under the State of Washington's Children's Safe Product Act. Reporting indicates that HCB is present in feeding and hygiene products, clothing, fabrics and furnishings, accessories, footwear, toys, and games¹⁶. HCB is also mentioned in 1290 patents¹⁷.

Table 1. List of Products

Trade name	Use of Product	% by weight of chemical	Link to references, SDS or industry information
Aldrin	Not specified	0.5	http://datasheets.scbt.com/sds/aghs/en/sc-239202.pdf
Chlorinated Hydrocarbons Mixture in Methylene Chloride	Not specified	0.2	http://www.cerilliant.com/shoponline/MSDS.aspx?itemno=6fde6198-eebc-44d9-84ee-8a011db855de
Toxi-Mat-14 Mixture	Not specified	0.00001 (Mole %)	http://www2.mathesongas.com/pdfs/msds/MATH0059.pdf
Fiberglass Reinforced Polyester	Not specified	Not specified	http://www.rowmark.com/MARK/MSDS/ColorLine_Unisub_FRP_MSDS.pdf
Polyester polymer	Not specified	Not specified	http://s3.amazonaws.com/jpmagento-public/documents/msds/UnisubFRP_MSDS.pdf
Dechlorane Plus, Grades 25, 35 and 515	Flame retardant	Not specified	http://www.stobec.com/documents/msds/7931.pdf
VOC-M54C	Calibration Standard	0.2	http://highpuritystandards.com/content/msds/organics/VOC-M54C_GHS.pdf
VOC Mixture	Reference Material and/or laboratory reagent	0.25-0.3	http://www.ultrasci.com/catalogmsds.aspx?productnum=dwm-588
Semi-Volatile Spiking Mixture (TCLP), TCLP-BNA	Laboratory Standard	0.2	http://www.chemcas.com/msds112/cas/3475/95-48-7_108-39-4_106-44-5_106-46-7_75-09-2.asp

¹⁶ State of Washington – Department of Ecology, *Children's Safe Product Act Reported Data* (Lacey, Washington: State of Washington, 2017).

<https://fortress.wa.gov/ecy/cspareporting/Reports/ReportViewer.aspx?ReportName=ChemicalReportByCASNumber>

¹⁷ https://pubchem.ncbi.nlm.nih.gov/compound/hexachloro-1_3-butadiene#section=Depositor-Supplied-Patent-Identifiers

4. Distribution (Includes Retailers)

General internet searches for distributors of HCBD yielded many vendors selling various quantities at different purities. Note that these are defined as distributors due to their marketing of HCBD for sale and distribution. Results of a search of distributors of HCBD are in Table 2 below. This list is provided for informational purposes only. EPA and its employees do not endorse any of the products or companies.

Table 2. List of Distributors

Given Name	Available Quantities	Purity (%)	Reference
HCBD	1 mL, 1 mL, 1 mL, 10 mg	5.0mg/mL in MeOH, 0.2 mg/mL in MeOH, 20.mg/mL in MeOH, tech mix (no further information)	http://www.best-reagent.com/goods-10463.html
HCBD	1g and 10g	Not specified	http://www.shchemsky.com/pro_more.asp?pid=38010
HCBD	50g, 250g, 500 g	97%	http://www.jkchemical.com/EN/products/A01440156.html
HCBD	Inquire	Not specified	http://www.fluoropharm.com/product/EF10111.html
HCBD	Inquire	Not specified	http://www.parchem.com/chemical-supplier-distributor/Hexachloro-1-3-Butadiene-012047.aspx
HCBD	25 g	96%	http://www.heowns.com/pro.aspx?keyno=87-68-3
HCBD	50g	Not specified	http://www.xiyashiji.com/product.php?key=87-68-3
HCBD	5g, 25g, 100g	98%	http://www.hanhonggroup.com/data/products_zh-cn/B12132.html
HCBD	50g, 250g, 1000g	97%	http://www.alfachina.cn/AlfaAesarApp/faces/adf.task-flow?adf.tfid=ProductDetailsTF&adf.tfDoc=/WEB-INF/ProductDetailsTF.xml&ProductId=A17316&_afLoop=235427020119286&_afrWindowMode=0&_afrWindowId=null
HCBD	50 g, 250g, 500g	97%	http://www.jkchemical.com/EN/products/A01440156.html
HCBD	25g and 100g	97%	http://www.pfaltzandbauer.com/Search.aspx (search CAS 87-68-3)
HCBD	2000 ug/mL (1.2 mL)	Not specified	http://www.cerilliant.com/shoonline/Item_Details.aspx?itemno=6fde6198-eebc-44d9-84ee-8a011db855de&item=ERC-047
HCBD	Inquire	Not specified	http://www.monomerpolymer.com/catalog/1672-hexachloro-13-butadiene.html?keyword=87-68-3
HCBD	Not specified	Not specified	https://www.artchemicals.com/ProductDetails.asp?ProductCode=809078491&CartID=1
HCBD ⁻¹³ C ₄	0.01g	97%	https://www.cdnisotopes.com/us/products/specifications/C-2408.php?ei=m2VubJVtZ21v0lZtu4G0r0aeCb9Me/iMdx0b8W0aa5kmmNsZ5mzY7Oo35i1lLWotJTngMe/1Hu90Wq0aq5k5q1os92zr7P0k+Rp4Gn0aOCdq4A=o
HCBD	100g	Not specified	http://www.mpbio.com/product.php?pid=05214544
HCBD	250 mg, 10 mL, 1 mL, 1mL, 1 mL, 1 mL	Unknown, 10 ng/mL, 100ng/mL, unknown, unknown	http://creschem.com/products?title=&field_product_cat_number_value=&field_product_cas_number_value=87-68-3&field_product_method_value=&tid=All&x=0&y=0

Given Name	Available Quantities	Purity (%)	Reference
HCBD	1 mL, 5.0 mg, 2.0 mg, 1 g, 2.0 mg, 0.2 mg, 100 ug	100ug/mL, 5.0 mg/mL, 2.0mg/mL, not specified, 2.0mg/mL, 0.2 mg/mL, 100ug/mL	https://www.accustandard.com/catalogsearch/result/?q=hexachlorobutadiene
HCBD	Inquire	Not specified	http://www.worldofchemicals.com/company/mapryser-sl/3859.html
HCBD	Inquire	Not specified	http://www.worldofchemicals.com/company/ntox/18421.html
HCBD	Inquire	Not specified	http://www.guidechem.com/trade/pdetail1895958.html
HCBD	Inquire	Not specified	http://www.guidechem.com/trade/pdetail1713587.html
HCBD	Inquire	Not specified	http://www.guidechem.com/trade/pdetail1569481.html
HCBD	Inquire	97%	http://www.guidechem.com/trade/pdetail2135167.html
HCBD	Not specified	99+%	http://www.scottecatalog.com/msds.nsf/d4d1225c9425e97985256f2b0068a714/154ae3dbb156c45185256a0a004e3826?OpenDocument
HCBD	Not specified	95%	https://www.spectrumchemical.com/MSDS/TCI-H0055.pdf
HCBD	100 mg, 1 g, 5 g, 10 g, 100 g, 250 g, 1 kg	Not specified	http://www.acccorporation.com/catalogsearch/result/?q=87-68-3&criteria=CasNo
HCBD	Not specified	Not specified	http://www.chemstock.com/product/hexachloro-13-butadiene/
HCBD, Pestanal Analytical Standard	Not specified	100%	http://www.sigmaaldrich.com/catalog/product/sial/45525?lang=en&region=US
HCBD	0.01 g, 1.2 mL	99%, 100 ug/mL	http://shop.isotope.com/advancedSearch.aspx (search hexachlorobutadiene)
HCBD, HCBD Solution	1g, 5mL	97.60%, 100 ug/mL	https://www.chemservice.com/ (search hexachlorobutadiene)
HCBD	500g, 1kg, 100g, 25g, 250g, 4kg	97%	http://www.oakwoodchemical.com/ProductsList.aspx?CategoryID=-2&txtSearch=1588&ExtHyperLink=1
HCBD	50g, 250g, 1000g	97%	https://www.alfa.com/en/webapps/EC165W.pgm?TASK=disp&rnd=94756&filterF=DSSTK&filterV=A17316
HCBD	1mL	1000ug/mL	https://www.amazon.com/Restek-hexachlorobutadiene-1000ug-methanol-RES/dp/B01N1YOYO9/ref=sr_1_2?ie=UTF8&qid=1483559247&sr=8-2&keywords=hexachlorobutadiene
HCBD	1mL	1000ug/mL	http://www.restek.com/catalog/view/10433
HCBD	Not specified (minimum 1kg)	Not specified	http://www.pharmaceutical-sale.net/products/Hexachlorobutadiene/
HCBD	250mL, 250mL, 250mg	97%	http://www.hx-r.com/product/html/14083.html
HCBD	Inquire	Not specified	http://www.acadechemical.com/product/108130
HCBD	Inquire	Not specified	https://aksci.com/item_detail.php?cat=7104AF
HCBD	Inquire	95%	http://www.debyesci.com/cas_87-68-3.html
HCBD	Up to kgs	98%	https://www.capotchem.com/87-68-3.html
HCBD	Inquire	Not specified	http://www.tractuschem.com/productshow/TRA0091637.html

Given Name	Available Quantities	Purity (%)	Reference
HCBD	Inquire	98%	http://www.finetechnology-ind.com/product_detail.shtml?catalogNo=FT-0626950
HCBD	Inquire	Not specified	http://www.thsci.com/TS08527.html
HCBD	1g, 5g, 25g, 250g	95-98%	https://www.molport.com/shop/molecule-link/MolPort-000-156-227
HCBD	1mg, 5 mg, 10mg	90%	https://mcule.com/MCULE-6627588056/
HCBD	Inquire	Not specified	http://www.chemtik.com/pro_result/390454/
HCBD	Inquire	Not specified	http://www.chembopharma.com/search/?keyword=KB-52390
HCBD	Inquire	Not specified	http://www.angenechemical.com/products/AGN-PC-OJK7T2.html#COA
HCBD	100g	Not specified	http://www.mpbio.com/product.php?pid=05214544
HCBD	250g, 1kg	97%	https://www.vladachem.com/product.php?product=142597

5. Uses

Industrial Uses

The following industrial uses, including historical and/or potential uses, of HCBD have been identified:

- Heat transfer liquid¹⁸
- Reactant in chemical syntheses¹⁹
- Organic solvent²⁰
- Wash liquor for hydrocarbon removal²¹
- Chlorine recovery²²
- Rubber vulcanization²³
- Manufacture of aluminum and graphite rods²⁴

¹⁸ United Nations Environmental Programme, Persistent Organic Pollutants Review Committee, *Risk Management Evaluation on Hexachlorobutadiene* (Rome: Persistent Organic Pollutants Review Committee, 2013).

<http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-POPRC.9-13-Add.2.English.pdf>

¹⁹ Zhang, C. et al. 2016. Synthesis of Z-1,1,1,4,4,4-hexafluoro-2-butene from hexachlorobutadiene. *J. Fluorine Chem.* **191**:77-83.

²⁰ Environmental Protection Agency, *Summary Characteristics of Selected chemicals of Near-Term Interest* (Washington DC: Office of Toxic Substances, 1976).

²¹ US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003).

https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

²² US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003).

https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

²³ US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003).

https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

²⁴ van der Honing, Margreet, *Paper for the 6th meeting of the UNECE CLRTAP Task Force on Persistent Organic Pollutants, Vienna, 4-6 June 2007* (The Hague: VROM, the ministry of Environment, 2007).

<http://www.unece.org/fileadmin/DAM/env/lrtap/TaskForce/popsxg/2007/6thmeeting/Exploration%20of%20management%20options%20for%20HCBD%20final.doc.pdf>

- Manufacture of carbon spheres²⁵
- Manufacture of photopolymerized films^{26,27}
- Preparation of organosilicon polymers²⁸

Commercial Uses

The following commercial uses, including historical and/or potential uses, of HCBD have been identified:

- Pesticides/agricultural fumigants²⁹
- Insecticides³⁰
- Algicide³¹
- Herbicide³²
- Hydraulic fluid³³
- Gyroscope fluid³⁴
- Laboratory reagent³⁵

²⁵ Shi, L. et al. 2004. Synthesis of Carbon Hollow Spheres by a Reaction of Hexachlorobutadiene with Sodium Azide. *Chemistry Letters* **33(5)**:532-533.

²⁶ U.S. National Library of Medicine, Hexachloro-1,3-butadiene, *Major Uses* (Bethesda, Maryland: National Institutes of Human Health).

<https://webwiser.nlm.nih.gov/WebWISER/getSubstanceData.do?substanceid=100&displaySubstanceName=Hcbd&STCCID=&UNNAID=&selectedDataMenuItemID=22&catId=24>

²⁷ <http://www.google.com/patents/US3522226>

²⁸ https://www.google.com/patents/US4965332?dq=us4965332&hl=en&sa=X&ved=0OahUKEwj6i93hn8rSAhUO12MKHW_KA9EQ6AEIHDA

²⁹ Corden, Caspar, Sergey Kakareka, Andre Peeters Weem, *Hexachlorobutadiene: Track B Review for the UNECE LRTAP Task Force on Persistent Organic Pollutants* (United Nations Economic Commission for Europe – Long Range Transboundary Air Pollution, 2006).

³⁰ Environmental Protection Agency, *Summary Characteristics of Selected chemicals of Near-Term Interest* (Washington DC: Office of Toxic Substances, 1976).

³¹ Environmental Protection Agency, *Summary Characteristics of Selected chemicals of Near-Term Interest* (Washington DC: Office of Toxic Substances, 1976).

³² Environmental Protection Agency, *Summary Characteristics of Selected chemicals of Near-Term Interest* (Washington DC: Office of Toxic Substances, 1976).

³³ US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003).

https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

³⁴ US Environmental Protection Agency, *Health Effects Support Document for Hexachlorobutadiene*, (Washington DC: Office of Water – Health and Ecological Criteria Division, 2003).

https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_hexachlorobutadiene_healtheffects.pdf

³⁵ Sigma-Aldrich, *Hexachloro-1,3-butadiene PESTANAL®*, analytical standard (St. Louis: Sigma Aldrich Co. LLC), webpage.

<http://www.sigmaaldrich.com/catalog/product/sial/45525?lang=en®ion=US>

Consumer Uses

While no consumer uses of HCBD have been identified, the following products contain or have been previously shown to contain HCBD:

- Children's clothing and headgear³⁶
- Drywall³⁷

6. Disposal of Waste and Recycling/Recovery

According to TRI data for the 2015 reporting year, 2,311 lbs. of HCBD were released on-site to air, 10 lbs. released on-site to landfills and 174 lbs. were transferred off-site for disposal. TRI data shows that 10,619,094 lbs. of HCBD was generated in waste, with 284,435 lbs. being recycled on-site, 27,280 burned for energy recovery on-site, and 10,278,244 lbs. treated for destruction on-site. Off-site waste management of HCBD includes 25 lbs. burned for energy recovery and 26,615 lbs. treated for destruction.

HCBD is a Hazardous Waste under the Resource Conservation and Recovery Act (RCRA) with Hazardous Waste Number U128.³⁸

USEFUL TYPES OF INFORMATION

This document presents a summary of information currently available to EPA on this chemical. EPA is interested in obtaining information to more fully characterize the manufacturing, processing, distribution, disposal, and use of this chemical, to inform the development of the exposure and use assessment for this chemical, and to inform any subsequent risk management efforts. For example, EPA is interested in obtaining information on:

- the functional uses for this chemical;
- what types of products contain this chemical;
- which industry sectors use this chemical;
- what volume of the chemical is used;
- which uses have been discontinued or phased out;
- exposure scenarios for this chemical; and
- in which articles this chemical is found.

³⁶ State of Washington – Department of Ecology, *Children's Safe Product Act Reported Data* (Lacey, Washington: State of Washington, 2017), webpage.

<https://fortress.wa.gov/ecy/cspareporting/Reports/ReportViewer.aspx?ReportName=ChemicalReportByCASNumber>

Select CAS Number: 87-68-3.

³⁷ Environmental Health & Engineering, Inc., *Problem Drywall Assessment and Indoor Environmental Quality Evaluation 144 Groesbeek Street and 4 Darden Street, North Carolina*, (Bethesda, Maryland: U.S. Consumer Product Safety Commission, 2011), Appendix A-5.

https://www.cpsc.gov/s3fs-public/pdfs/blk_media_ehefeb2011.pdf

³⁸ 40 CFR 261.33(f)

APPENDIX: SOURCES CONSULTED

- U.S. EPA HPV HC (access through Chemical Data Access Tool – CDAT)
https://java.epa.gov/oppt_chemical_search/
- U.S. EPA HPVIS and HPV HC (access through Chemical Data Access Tool – CDAT)
https://java.epa.gov/oppt_chemical_search/
- U.S. EPA Chemicals Inventory
<https://www.epa.gov/tsca-inventory>
- U.S. EPA HPVIS and HPV HC (access through Chemical Data Access Tool – CDAT)
https://java.epa.gov/oppt_chemical_search/
- U.S. EPA InertFinder
<https://iaspub.epa.gov/apex/pesticides/f?p=101:1:>
- U.S. EPA Pesticide Chemical Search
<https://iaspub.epa.gov/apex/pesticides/f?p=CHEMICALSEARCH:1:0::NO:1::>
- U.S. EPA Endocrine Disruptor Screening Program
<https://www.epa.gov/ingredients-used-pesticide-products/endocrine-disruptor-screening-program-tier-1-assessments>
- U.S. EPA Significant New Alternatives Policy (SNAP)
<https://www.epa.gov/snap>
- CPSC FHSA
<https://www.cpsc.gov/Business--Manufacturing/Business-Education/Business-Guidance/FHSA-Requirements/>
- Food and Drug Administration *List of Databases*
<http://www.fda.gov/ForIndustry/FDABasicsforIndustry/ucm234631.htm>
- California OEHHA *Biomonitoring*
<http://biomonitoring.ca.gov/chemicals>
- Maine *Chemicals of high concern*
<http://www.maine.gov/dep/safechem/highconcern/>
- Massachusetts *Toxics Use Reduction Act (TURA)* (link includes a link to Higher hazard substances list)
<http://www.mass.gov/eea/waste-mgmt-recycling/toxics/toxic-use-reduction/toxics-use-reduction-act/>
- Oregon *Pollutant Profiles*
<http://www.deq.state.or.us/wq/SB737/docs/LegRpAtt420100601.pdf>
- Washington Department of Labor & Industries *SHARP Publications*
<http://www.lni.wa.gov/Safety/Research/Pubs/default.asp>
- Lowell Center for Sustainable Production *Chemical, Policy and Science Initiative*
<http://www.chemicalspolicy.org/chemicalspolicy.us.state.database.php>
- National Conference of State Legislatures
<http://www.ncsl.org/research/environment-and-natural-resources/state-chemical-statutes.aspx>
- CPSC *Chemicals*
<http://www.cpsc.gov/en/Research--Statistics/Chemicals/>
- U.S. Department of Health & Human Services *Household Products Database*
<https://hpd.nlm.nih.gov/index.htm>
- Oregon *Pollutant Profiles*
<http://www.deq.state.or.us/wq/SB737/docs/LegRpAtt420100601.pdf>

- DeLima Associates *Consumer Product Information Database (CPID)*
<https://www.whatsinproducts.com/chemicals/index/1>
- Product and company websites
<https://safecosmetics.cdph.ca.gov/search/Default.aspx>
- DfE Alternatives Assessments
<https://www.epa.gov/saferchoice/safer-ingredients>
- Safer Chemical Ingredients List
<https://www.epa.gov/saferchoice/safer-ingredients>
- Green Chemistry awards – information regarding possible alternatives
<https://www.epa.gov/greenchemistry/presidential-green-chemistry-challenge-winners>
- Pollution Prevention – information regarding possible alternatives
<https://www.epa.gov/p2/pollution-prevention-case-studies>
<https://www.epa.gov/p2/grant-programs-pollution-prevention#sra>
- Greener products and services (e.g. some of the electronic standards include alternative assessments)
<https://www.epa.gov/greenerproducts/identify-greener-products-and-services>