



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 5 CHICAGO REGIONAL LABORATORY
 536 SOUTH CLARK STREET
 CHICAGO, ILLINOIS 60605



Date: 3/28/2018

Subject: Review of Region 5 Data for Mid America Steel Drum, Inc.

To: Air Division, US EPA Region 5
 77 West Jackson Boulevard
 Chicago, IL 60605

From: Wayne Whipple, Chemist
 US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL’s data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X _____

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Mid America Steel Drum, Inc.

_____/_____/_____
 Data Coordinator and Date Transmitted

Analyses included in this report:

Air Toxics Reimer 5



Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Phone:(312)353-8370 Fax:(312)886-2591

Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60605

Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Analysis Case Narrative for Volatile Organic Compounds (VOC) Air Toxics

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General Information:

Two 2.7 L canisters were received on 18 January, 2018 in good condition. The samples were analyzed within the 30 day holding time.

The samples were analyzed using the CRL SOP MS005 ver. 2 with Pen and Ink 8327, 9436 and 9102 which allows for the use of the new Entech 7200 Preconcentrator and 7650 Robotic arm for sample analysis and an extended list of target compounds and clarifies a discrepancy between analytical and data review SOPs with the ICV recoveries.

The project objectives were to quantify target analytes and the presence of any other high concentration analytes detectable by this laboratory's SOP that is based on the TO-15 analysis. Data verification was performed and the data is acceptable to use for the purpose in the QAPP, GMAP V3 QAPP dated 5-13-16.

Preliminary results were sent on February 8, 2018. Detection and reporting limits along with data qualifiers have been changed and added to account for interferences found in the sample chromatograms.

Data are reported to the detection limit.

Calibration files are located in 1801009 folders.

Sample Analysis and Results:

Samples were received and the initial pressure was recorded in the canister.

Acrolein has major ions present but are believed to be influenced from coeluting non-target compounds and therefore considered estimated and are flagged as "K" and "MI" for matrix interference.

Propene cannot be chromatographically or spectrally resolved from propane. Propane is present and therefore the result is estimated as propene + propane and flagged "J".

A large peak was detected that was not a target compound and was tentatively identified as 1,3-dioxolane in sample 1802001-02. The estimated concentration was based on the major ion for 1,4-dioxane in the calibration curve. The result is considered estimated and flagged "J" and "N".

Quality Control:

Acetaldehyde did not pass the calibration criteria with severely nonlinear behavior and therefore was qualified "R" for rejected.

Ethanol (100 pptv), isobutene (100 pptv), and 1-propanol (50 pptv), detection limits were set to the first level in the calibration curve that passed the acceptance criteria. The problem was interferences from system background contamination or lower sensitivity for the compounds.

Methanol's result was above the calibration curve in sample 1802001-01 and B18B001-DUP1. Additionally, the compound does not have a high confidence in quantitative results and was therefore considered estimated and flagged as "J".

Field sample results that were within 5x noted method or canister blank detections were quailed "B" or "BC". The Minimum Reporting Limit sample was added to evaluate the performance of the 20 mL injection that was used for the reanalysis of sample 1802001-02. Only methanol, ethanol and the tentatively identified compound 1,3-dioxolane is reported from that analysis. The full MRL sample is reported for analytical informational purposes. Any exceedances of



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quality control standards for other compounds does not affect the reported results and no qualifiers are added.



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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
0824	1802001-01	Air	Jan-31-18 09:38	Feb-01-18 10:10
0635	1802001-02	Air	Jan-31-18 09:32	Feb-01-18 10:10



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Air Toxics by GC/MS, EPA TO-15 (modified) US EPA Region 5 Chicago Regional Laboratory

0824 (1802001-01) Matrix: Air Sampled: Jan-31-18 09:38 Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Chlorodifluoromethane (HCFC-22) (R-22)	0.241		2.50E-3	0.0250	ppbv	1	B18B001	Feb-01-18	Feb-01-18
Propene + propane	0.495	J	2.50E-3	0.0250	"	"	"	"	"
Chloromethane	0.513		2.50E-3	0.0250	"	"	"	"	"
Methanol	2.63	B, J	0.500	5.00	"	"	"	"	"
Vinyl chloride	U		2.50E-3	0.0250	"	"	"	"	"
Isobutene	0.0383	J	2.50E-3	0.100	"	"	"	"	"
1,3-butadiene	3.72E-3	J	2.50E-3	0.0250	"	"	"	"	"
Acetaldehyde	Rejected		0.500	5.00	"	"	"	"	"
Bromomethane	U		2.50E-3	0.0250	"	"	"	"	"
Chloroethane	5.93E-3	J	2.50E-3	0.0250	"	"	"	"	"
Ethanol	1.58		0.0500	0.500	"	"	"	"	"
Acrolein	0.0757	B, K, MI	2.50E-3	0.0250	"	"	"	"	"
Acetonitrile	0.0507		2.50E-3	0.0250	"	"	"	"	"
Isopropyl alcohol	0.0928	B	2.50E-3	0.0250	"	"	"	"	"
Propanal	0.0789	B	2.50E-3	0.0250	"	"	"	"	"
Acetone	0.704	B	0.0250	0.0250	"	"	"	"	"
Pentane	0.176		2.50E-3	0.0250	"	"	"	"	"
Isoprene	U		2.50E-3	0.0250	"	"	"	"	"
1,1-Dichloroethene	U		2.50E-3	0.0250	"	"	"	"	"
Methyl iodide	U		2.50E-3	0.0250	"	"	"	"	"
Acrylonitrile	U		0.0250	0.0250	"	"	"	"	"
Methylene chloride	0.0835		2.50E-3	0.0250	"	"	"	"	"
Carbon disulfide	U		2.50E-3	0.0250	"	"	"	"	"
1-Propanol	U		0.0500	0.0500	"	"	"	"	"
Cyclopentane	0.0410		0.0250	0.0250	"	"	"	"	"
Methyl tert-butyl ether	U		2.50E-3	0.0250	"	"	"	"	"
Methacrolein	0.0181	B, J	2.50E-3	0.0250	"	"	"	"	"
1,1-Dichloroethane	U		2.50E-3	0.0250	"	"	"	"	"
Vinyl acetate	U		2.50E-3	0.0250	"	"	"	"	"



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Project Manager: Alexandra Letuchy

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Air Toxics by GC/MS, EPA TO-15 (modified) US EPA Region 5 Chicago Regional Laboratory

0824 (1802001-01)

Matrix: Air

Sampled: Jan-31-18 09:38

Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Methyl vinyl ketone	0.0127	J	2.50E-3	0.0250	ppbv	1	B18B001	Feb-01-18	Feb-01-18
Butanal	0.0390	B	0.0250	0.0250	"	"	"	"	"
Hexane	0.0593		2.50E-3	0.0250	"	"	"	"	"
2-Butanone	0.124	B	2.50E-3	0.0250	"	"	"	"	"
cis-1,2-Dichloroethene	U		2.50E-3	0.0250	"	"	"	"	"
trans-1,2-Dichloroethene	3.15E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
Chloroform	0.0206	J	2.50E-3	0.0250	"	"	"	"	"
1,2-Dichloroethane	0.0185	J	2.50E-3	0.0250	"	"	"	"	"
1-Butanol	U		0.0250	0.0500	"	"	"	"	"
Cyclohexane	0.0294		0.0250	0.0250	"	"	"	"	"
Benzene	0.143		2.50E-3	0.0250	"	"	"	"	"
2-Pentanone	U		0.0250	0.0250	"	"	"	"	"
Pentanal	U		0.0250	0.0250	"	"	"	"	"
3-Pentanone	U		0.0250	0.0250	"	"	"	"	"
1,2-Dichloropropane	6.02E-3	J	2.50E-3	0.0250	"	"	"	"	"
Trichloroethene	3.81E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
Bromodichloromethane	U		2.50E-3	0.0250	"	"	"	"	"
1,4-Dioxane	U		2.50E-3	0.0250	"	"	"	"	"
cis-1,3-Dichloropropene	U		2.50E-3	0.0250	"	"	"	"	"
4-Methyl-2-pentanone	3.34E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
trans-1,3-Dichloropropene	U		2.50E-3	0.0250	"	"	"	"	"
1,1,2-Trichloroethane	U		2.50E-3	0.0250	"	"	"	"	"
Dibromochloromethane	U		2.50E-3	0.0250	"	"	"	"	"
Toluene	0.104	B	2.50E-3	0.0250	"	"	"	"	"
3-Hexanone	U		0.0250	0.0250	"	"	"	"	"
2-Hexanone	U		0.0250	0.0250	"	"	"	"	"
Hexanal	0.0444	B	0.0250	0.0250	"	"	"	"	"
1,2-Dibromoethane (EDB)	U		2.50E-3	0.0250	"	"	"	"	"
Tetrachloroethene	8.65E-3	J	2.50E-3	0.0250	"	"	"	"	"
Chlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Ethylbenzene	0.0155	J	2.50E-3	0.0250	"	"	"	"	"
m+p-Xylene	0.0372	B, J	5.00E-3	0.0500	"	"	"	"	"
Bromoform	U		2.50E-3	0.0250	"	"	"	"	"
Styrene	6.60E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
1,1,1,2-Tetrachloroethane	U		2.50E-3	0.0250	"	"	"	"	"



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Project Number: [none]
Project Manager: Alexandra Letuchy

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Air Toxics by GC/MS, EPA TO-15 (modified) US EPA Region 5 Chicago Regional Laboratory

0824 (1802001-01)

Matrix: Air

Sampled: Jan-31-18 09:38

Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
o-Xylene	0.0142	J	2.50E-3	0.0250	ppbv	1	B18B001	Feb-01-18	Feb-01-18
1,3,5-Trimethylbenzene	5.55E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
1,2,4-Trimethylbenzene	0.0132	J	2.50E-3	0.0250	"	"	"	"	"
1,3-Dichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Benzyl chloride	U		2.50E-3	0.0250	"	"	"	"	"
1,4-Dichlorobenzene	3.86E-3	B, BC, J	2.50E-3	0.0250	"	"	"	"	"
1,2,3-Trimethylbenzene	U		2.50E-3	0.0250	"	"	"	"	"
1,2-Dichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Hexachlorobutadiene	U		2.50E-3	0.0250	"	"	"	"	"
1,2,4-Trichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Naphthalene	6.64E-3	B, J	2.50E-3	0.0250	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
<i>Dichlorodifluoromethane</i>	0.541	106%	70-130	"	"	"
<i>Dichlorotetrafluoroethane</i>	0.0169	84%	60-140	"	"	"
<i>Trichlorofluoromethane</i>	0.239	102%	70-130	"	"	"
<i>1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)</i>	0.0737	102%	70-130	"	"	"
<i>1,1,1-Trichloroethane</i>	2.17E-3	54%	50-150	"	"	"
<i>Carbon tetrachloride</i>	0.0828	100%	70-130	"	"	"

0635 (1802001-02)

Matrix: Air

Sampled: Jan-31-18 09:32

Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,3-dioxolane	0.00				ppbv	1	B18B001	Feb-01-18	Feb-01-18
Chlorodifluoromethane (HCFC-22) (R-22)	0.248		2.50E-3	0.0250	"	"	"	"	"
Propene + propane	0.518	J	2.50E-3	0.0250	"	"	"	"	"
Chloromethane	0.501		2.50E-3	0.0250	"	"	"	"	"
Vinyl chloride	U		2.50E-3	0.0250	"	"	"	"	"
Isobutene	0.0309	J	2.50E-3	0.100	"	"	"	"	"
1,3-butadiene	4.12E-3	J	2.50E-3	0.0250	"	"	"	"	"
Acetaldehyde	Rejected		0.500	5.00	"	"	"	"	"
Bromomethane	6.72E-3	J	2.50E-3	0.0250	"	"	"	"	"
Chloroethane	0.0104	J	2.50E-3	0.0250	"	"	"	"	"
Acrolein	0.0742	B, K, MI	2.50E-3	0.0250	"	"	"	"	"



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0635 (1802001-02)

Matrix: Air

Sampled: Jan-31-18 09:32

Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Acetonitrile	0.0572		2.50E-3	0.0250	ppbv	1	B18B001	Feb-01-18	Feb-01-18
Isopropyl alcohol	0.602		2.50E-3	0.0250	"	"	"	"	"
Propanal	0.114	B	2.50E-3	0.0250	"	"	"	"	"
Acetone	3.37		0.0250	0.0250	"	"	"	"	"
Pentane	0.189		2.50E-3	0.0250	"	"	"	"	"
Isoprene	7.17E-3	J	2.50E-3	0.0250	"	"	"	"	"
1,1-Dichloroethene	U		2.50E-3	0.0250	"	"	"	"	"
Methyl iodide	U		2.50E-3	0.0250	"	"	"	"	"
Acrylonitrile	U		0.0250	0.0250	"	"	"	"	"
Methylene chloride	0.284		2.50E-3	0.0250	"	"	"	"	"
Carbon disulfide	8.84E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
1-Propanol	0.657		0.0500	0.0500	"	"	"	"	"
Cyclopentane	0.0323		0.0250	0.0250	"	"	"	"	"
Methyl tert-butyl ether	2.68E-3	J	2.50E-3	0.0250	"	"	"	"	"
Methacrolein	0.0275	B	2.50E-3	0.0250	"	"	"	"	"
1,1-Dichloroethane	U		2.50E-3	0.0250	"	"	"	"	"
Vinyl acetate	U		2.50E-3	0.0250	"	"	"	"	"
Methyl vinyl ketone	U		2.50E-3	0.0250	"	"	"	"	"
Butanal	0.0541	B	0.0250	0.0250	"	"	"	"	"
Hexane	0.0974		2.50E-3	0.0250	"	"	"	"	"
2-Butanone	0.833		2.50E-3	0.0250	"	"	"	"	"
cis-1,2-Dichloroethene	U		2.50E-3	0.0250	"	"	"	"	"
trans-1,2-Dichloroethene	U		2.50E-3	0.0250	"	"	"	"	"
Chloroform	0.0189	J	2.50E-3	0.0250	"	"	"	"	"
1,2-Dichloroethane	0.0182	J	2.50E-3	0.0250	"	"	"	"	"
1-Butanol	0.281		0.0250	0.0500	"	"	"	"	"
Cyclohexane	0.0524		0.0250	0.0250	"	"	"	"	"
Benzene	0.145		2.50E-3	0.0250	"	"	"	"	"
2-Pentanone	0.0368	B	0.0250	0.0250	"	"	"	"	"
3-Pentanone	U		0.0250	0.0250	"	"	"	"	"
Pentanal	0.0353	B	0.0250	0.0250	"	"	"	"	"
1,2-Dichloropropane	5.46E-3	J	2.50E-3	0.0250	"	"	"	"	"
Trichloroethene	4.60E-3	B, J	2.50E-3	0.0250	"	"	"	"	"
Bromodichloromethane	U		2.50E-3	0.0250	"	"	"	"	"
1,4-Dioxane	U		2.50E-3	0.0250	"	"	"	"	"



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0635 (1802001-02)

Matrix: Air

Sampled: Jan-31-18 09:32

Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
cis-1,3-Dichloropropene	U		2.50E-3	0.0250	ppbv	1	B18B001	Feb-01-18	Feb-01-18
4-Methyl-2-pentanone	0.0640	B	2.50E-3	0.0250	"	"	"	"	"
trans-1,3-Dichloropropene	U		2.50E-3	0.0250	"	"	"	"	"
1,1,2-Trichloroethane	U		2.50E-3	0.0250	"	"	"	"	"
Dibromochloromethane	U		2.50E-3	0.0250	"	"	"	"	"
Toluene	0.368		2.50E-3	0.0250	"	"	"	"	"
3-Hexanone	U		0.0250	0.0250	"	"	"	"	"
2-Hexanone	U		0.0250	0.0250	"	"	"	"	"
Hexanal	0.0787	B	0.0250	0.0250	"	"	"	"	"
1,2-Dibromoethane (EDB)	U		2.50E-3	0.0250	"	"	"	"	"
Tetrachloroethene	0.0548		2.50E-3	0.0250	"	"	"	"	"
Chlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Ethylbenzene	0.0653		2.50E-3	0.0250	"	"	"	"	"
m+p-Xylene	0.224		5.00E-3	0.0500	"	"	"	"	"
Bromoform	U		2.50E-3	0.0250	"	"	"	"	"
Styrene	0.0620		2.50E-3	0.0250	"	"	"	"	"
1,1,1,2-Tetrachloroethane	U		2.50E-3	0.0250	"	"	"	"	"
o-Xylene	0.0674		2.50E-3	0.0250	"	"	"	"	"
1,3,5-Trimethylbenzene	0.0215	B, J	2.50E-3	0.0250	"	"	"	"	"
1,2,4-Trimethylbenzene	0.0627		2.50E-3	0.0250	"	"	"	"	"
1,3-Dichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Benzyl chloride	U		2.50E-3	0.0250	"	"	"	"	"
1,4-Dichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
1,2,3-Trimethylbenzene	0.0219	J	2.50E-3	0.0250	"	"	"	"	"
1,2-Dichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Hexachlorobutadiene	U		2.50E-3	0.0250	"	"	"	"	"
1,2,4-Trichlorobenzene	U		2.50E-3	0.0250	"	"	"	"	"
Naphthalene	8.18E-3	B, J	2.50E-3	0.0250	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.532	104%	70-130	"	"	"
Dichlorotetrafluoroethane	0.0168	84%	60-140	"	"	"
Trichlorofluoromethane	0.232	99%	70-130	"	"	"
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.0689	96%	70-130	"	"	"



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312)353-8370 Fax: (312)886-2591

Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60605

Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) US EPA Region 5 Chicago Regional Laboratory

0635 (1802001-02) Matrix: Air Sampled: Jan-31-18 09:32 Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>1,1,1-Trichloroethane</i>	2.41E-3			60%		50-150	B18B001	Feb-01-18	Feb-01-18
<i>Carbon tetrachloride</i>	0.0812			98%		70-130	"	"	"

0635 (1802001-02RE1) Matrix: Air Sampled: Jan-31-18 09:32 Received: Feb-01-18 10:10

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,3-dioxolane	6.71	J, N			ppbv	1	B18B001	Feb-01-18	Feb-01-18
Methanol	5.03	B, J	5.00	50.0	"	"	"	"	"
Ethanol	2.85	J	0.500	5.00	"	"	"	"	"
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Dichlorodifluoromethane</i>	0.578			113%		70-130	"	"	"
<i>Dichlorotetrafluoroethane</i>	0.0203			102%		60-140	"	"	"
<i>Trichlorofluoromethane</i>	0.294			125%		70-130	"	"	"
<i>1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)</i>	0.0811			113%		70-130	"	"	"
<i>Carbon tetrachloride</i>	0.0945			114%		70-130	"	"	"



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 Project Number: [none]
 Project Manager: Alexandra Letuchy

Reported:
 Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

Blank (B18B001-BLK1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	U		2.50E-3	0.0250	ppbv						
Propene	0.0451		2.50E-3	0.0250	"						
Chloromethane	0.0166	J	2.50E-3	0.0250	"						
Methanol	6.95	Q	0.500	5.00	"						
Vinyl chloride	U		2.50E-3	0.0250	"						
Isobutene	U		2.50E-3	0.100	"						
1,3-butadiene	U		2.50E-3	0.0250	"						
Acetaldehyde	Rejected		0.500	5.00	"						
Bromomethane	U		2.50E-3	0.0250	"						
Chloroethane	U		2.50E-3	0.0250	"						
Ethanol	0.0679	J, Q	0.0500	0.500	"						
Acrolein	0.0443		2.50E-3	0.0250	"						
Acetonitrile	8.56E-3	J, Q	2.50E-3	0.0250	"						
Isopropyl alcohol	0.0834		2.50E-3	0.0250	"						
Propanal	0.120		2.50E-3	0.0250	"						
Acetone	0.315	Q	0.0250	0.0250	"						
Pentane	3.43E-3	J, Q	2.50E-3	0.0250	"						
Isoprene	U		2.50E-3	0.0250	"						
1,1-Dichloroethene	U		2.50E-3	0.0250	"						
Methyl iodide	U		2.50E-3	0.0250	"						
Acrylonitrile	U		0.0250	0.0250	"						
Methylene chloride	3.45E-3	J, Q	2.50E-3	0.0250	"						
Carbon disulfide	5.94E-3	J, Q	2.50E-3	0.0250	"						
1-Propanol	U		0.0500	0.0500	"						



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

Blank (B18B001-BLK1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Cyclopentane	U		0.0250	0.0250	ppbv						
Methyl tert-butyl ether	U		2.50E-3	0.0250	"						
Methacrolein	0.0675		2.50E-3	0.0250	"						
1,1-Dichloroethane	U		2.50E-3	0.0250	"						
Vinyl acetate	U		2.50E-3	0.0250	"						
Methyl vinyl ketone	U		2.50E-3	0.0250	"						
Butanal	0.0749	Q	0.0250	0.0250	"						
Hexane	U		2.50E-3	0.0250	"						
2-Butanone	0.0408		2.50E-3	0.0250	"						
cis-1,2-Dichloroethene	U		2.50E-3	0.0250	"						
trans-1,2-Dichloroethene	0.0168	J	2.50E-3	0.0250	"						
Chloroform	U		2.50E-3	0.0250	"						
1,2-Dichloroethane	U		2.50E-3	0.0250	"						
1-Butanol	U		0.0250	0.0500	"						
Cyclohexane	U		0.0250	0.0250	"						
Benzene	9.41E-3	J, Q	2.50E-3	0.0250	"						
2-Pentanone	0.0261	Q	0.0250	0.0250	"						
Pentanal	0.0293	Q	0.0250	0.0250	"						
3-Pentanone	U		0.0250	0.0250	"						
1,2-Dichloropropane	U		2.50E-3	0.0250	"						
Trichloroethene	U		2.50E-3	0.0250	"						
Bromodichloromethane	U		2.50E-3	0.0250	"						
1,4-Dioxane	U		2.50E-3	0.0250	"						
cis-1,3-Dichloropropene	U		2.50E-3	0.0250	"						
4-Methyl-2-pentanone	0.0192	J	2.50E-3	0.0250	"						
trans-1,3-Dichloropropene	U		2.50E-3	0.0250	"						
1,1,2-Trichloroethane	U		2.50E-3	0.0250	"						
Dibromochloromethane	U		2.50E-3	0.0250	"						
Toluene	0.0231	J	2.50E-3	0.0250	"						
3-Hexanone	U		0.0250	0.0250	"						



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Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

Blank (B18B001-BLK1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
2-Hexanone	U		0.0250	0.0250	ppbv						
Hexanal	0.0438	Q	0.0250	0.0250	"						
1,2-Dibromoethane (EDB)	U		2.50E-3	0.0250	"						
Tetrachloroethene	U		2.50E-3	0.0250	"						
Chlorobenzene	U		2.50E-3	0.0250	"						
Ethylbenzene	U		2.50E-3	0.0250	"						
m+p-Xylene	7.60E-3	J, Q	5.00E-3	0.0500	"						
Bromoform	U		2.50E-3	0.0250	"						
Styrene	3.82E-3	J, Q	2.50E-3	0.0250	"						
1,1,1,2-Tetrachloroethane	U		2.50E-3	0.0250	"						
o-Xylene	U		2.50E-3	0.0250	"						
1,3,5-Trimethylbenzene	7.66E-3	J, Q	2.50E-3	0.0250	"						
1,2,4-Trimethylbenzene	U		2.50E-3	0.0250	"						
1,3-Dichlorobenzene	U		2.50E-3	0.0250	"						
Benzyl chloride	U		2.50E-3	0.0250	"						
1,4-Dichlorobenzene	2.63E-3	J, Q	2.50E-3	0.0250	"						
1,2,3-Trimethylbenzene	U		2.50E-3	0.0250	"						
1,2-Dichlorobenzene	U		2.50E-3	0.0250	"						
Hexachlorobutadiene	U		2.50E-3	0.0250	"						
1,2,4-Trichlorobenzene	U		2.50E-3	0.0250	"						
Naphthalene	5.29E-3	J, Q	2.50E-3	0.0250	"						
Surrogate: Dichlorodifluoromethane	U		2.50E-3	0.0250	"				70-130		
Surrogate: Dichlorotetrafluoroethane	U		2.50E-3	0.0250	"				60-140		
Surrogate: Trichlorofluoromethane	U		2.50E-3	0.0250	"				70-130		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon	U		2.50E-3	0.0250	"				70-130		
Surrogate: 1,1,1-Trichloroethane	U		2.50E-3	0.0250	"				50-150		
Surrogate: Carbon tetrachloride	U		2.50E-3	0.0250	"				70-130		



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

LCS (B18B001-BS1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	0.526		2.50E-3	0.0250	ppbv	0.5310		99%	70-130		
Propene	0.432		2.50E-3	0.0250	"	0.5370		80%	70-130		
Chloromethane	0.507		2.50E-3	0.0250	"	0.5490		92%	70-130		
Methanol	0.512	B, J	0.500	5.00	"	0.5170		99%	60-140		
Vinyl chloride	0.482		2.50E-3	0.0250	"	0.5370		90%	70-130		
Isobutene	0.363	Q	2.50E-3	0.100	"	0.5300		69%	70-130		
1,3-butadiene	0.466		2.50E-3	0.0250	"	0.5450		86%	70-130		
Acetaldehyde	Rejected	Q	0.500	5.00	"	0.5390		%	60-140		
Bromomethane	0.520		2.50E-3	0.0250	"	0.5540		94%	70-130		
Chloroethane	0.497		2.50E-3	0.0250	"	0.5510		90%	70-130		
Ethanol	0.431	J	0.0500	0.500	"	0.5060		85%	60-140		
Acrolein	0.410		2.50E-3	0.0250	"	0.5180		79%	60-140		
Acetonitrile	0.417		2.50E-3	0.0250	"	0.5050		83%	60-140		
Isopropyl alcohol	0.412		2.50E-3	0.0250	"	0.5000		82%	60-140		
Propanal	0.423		2.50E-3	0.0250	"	0.5220		81%	60-140		
Acetone	0.454		0.0250	0.0250	"	0.5410		84%	60-140		
Pentane	0.440		2.50E-3	0.0250	"	0.5600		79%	70-130		
Isoprene	0.439		2.50E-3	0.0250	"	0.5420		81%	70-130		
1,1-Dichloroethene	0.454		2.50E-3	0.0250	"	0.5220		87%	70-130		
Methyl iodide	0.443		2.50E-3	0.0250	"	0.5340		83%	70-130		
Acrylonitrile	0.417		0.0250	0.0250	"	0.5010		83%	60-140		
Methylene chloride	0.432		2.50E-3	0.0250	"	0.5000		86%	70-130		
Carbon disulfide	0.480		2.50E-3	0.0250	"	0.4990		96%	60-140		
1-Propanol	0.378		0.0500	0.0500	"	0.4790		79%	60-140		
Cyclopentane	0.360		0.0250	0.0250	"	0.4940		73%	70-130		
Methyl tert-butyl ether	0.386		2.50E-3	0.0250	"	0.5040		77%	60-140		
Methacrolein	0.374		2.50E-3	0.0250	"	0.4790		78%	60-140		
1,1-Dichloroethane	0.428		2.50E-3	0.0250	"	0.4950		86%	70-130		
Vinyl acetate	0.397		2.50E-3	0.0250	"	0.4950		80%	60-140		
Methyl vinyl ketone	0.399		2.50E-3	0.0250	"	0.4920		81%	60-140		



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

LCS (B18B001-BS1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Butanal	0.381		0.0250	0.0250	ppbv	0.4790		79%	60-140		
Hexane	0.371		2.50E-3	0.0250	"	0.4970		75%	70-130		
2-Butanone	0.399		2.50E-3	0.0250	"	0.5230		76%	60-140		
cis-1,2-Dichloroethene	0.420		2.50E-3	0.0250	"	0.4960		85%	70-130		
trans-1,2-Dichloroethene	0.427		2.50E-3	0.0250	"	0.5060		84%	70-130		
Chloroform	0.449		2.50E-3	0.0250	"	0.5110		88%	70-130		
1,2-Dichloroethane	0.427		2.50E-3	0.0250	"	0.4950		86%	70-130		
1-Butanol	0.399		0.0250	0.0500	"	0.5030		79%	60-140		
Cyclohexane	0.392		0.0250	0.0250	"	0.5050		78%	70-130		
Benzene	0.408		2.50E-3	0.0250	"	0.5040		81%	70-130		
2-Pentanone	0.392		0.0250	0.0250	"	0.5020		78%	60-140		
Pentanal	0.392		0.0250	0.0250	"	0.4940		79%	60-140		
3-Pentanone	0.394		0.0250	0.0250	"	0.5070		78%	60-140		
1,2-Dichloropropane	0.429		2.50E-3	0.0250	"	0.5010		86%	70-130		
Trichloroethene	0.371		2.50E-3	0.0250	"	0.5010		74%	70-130		
Bromodichloromethane	0.479		2.50E-3	0.0250	"	0.5240		91%	70-130		
1,4-Dioxane	0.424		2.50E-3	0.0250	"	0.5300		80%	60-140		
cis-1,3-Dichloropropene	0.419		2.50E-3	0.0250	"	0.5100		82%	70-130		
4-Methyl-2-pentanone	0.414		2.50E-3	0.0250	"	0.5020		83%	60-140		
trans-1,3-Dichloropropene	0.434		2.50E-3	0.0250	"	0.5130		85%	70-130		
1,1,2-Trichloroethane	0.446		2.50E-3	0.0250	"	0.5020		89%	70-130		
Dibromochloromethane	0.506		2.50E-3	0.0250	"	0.5060		100%	70-130		
Toluene	0.383		2.50E-3	0.0250	"	0.4920		78%	70-130		
3-Hexanone	0.410		0.0250	0.0250	"	0.5050		81%	60-140		
2-Hexanone	0.361		0.0250	0.0250	"	0.4950		73%	60-140		
Hexanal	0.386		0.0250	0.0250	"	0.5010		77%	60-140		
1,2-Dibromoethane (EDB)	0.446		2.50E-3	0.0250	"	0.5080		88%	70-130		
Tetrachloroethene	0.430		2.50E-3	0.0250	"	0.4990		86%	70-130		
Chlorobenzene	0.411		2.50E-3	0.0250	"	0.5070		81%	70-130		
Ethylbenzene	0.361		2.50E-3	0.0250	"	0.4890		74%	70-130		



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Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

LCS (B18B001-BS1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
m+p-Xylene	0.719		5.00E-3	0.0500	ppbv	0.9850		73%	70-130		
Bromoform	0.484		2.50E-3	0.0250	"	0.5240		92%	70-130		
Styrene	0.398		2.50E-3	0.0250	"	0.5020		79%	70-130		
1,1,2,2-Tetrachloroethane	0.465		2.50E-3	0.0250	"	0.5070		92%	70-130		
o-Xylene	0.363		2.50E-3	0.0250	"	0.4860		75%	70-130		
1,3,5-Trimethylbenzene	0.378		2.50E-3	0.0250	"	0.5030		75%	70-130		
1,2,4-Trimethylbenzene	0.383		2.50E-3	0.0250	"	0.5020		76%	70-130		
1,3-Dichlorobenzene	0.430		2.50E-3	0.0250	"	0.4980		86%	70-130		
Benzyl chloride	0.405		2.50E-3	0.0250	"	0.5150		79%	70-130		
1,4-Dichlorobenzene	0.443		2.50E-3	0.0250	"	0.5260		84%	70-130		
1,2,3-Trimethylbenzene	0.331		2.50E-3	0.0250	"	0.4380		76%	70-130		
1,2-Dichlorobenzene	0.433		2.50E-3	0.0250	"	0.5140		84%	70-130		
Hexachlorobutadiene	0.437		2.50E-3	0.0250	"	0.4890		89%	70-130		
1,2,4-Trichlorobenzene	0.423		2.50E-3	0.0250	"	0.5120		83%	70-130		
Naphthalene	0.402		2.50E-3	0.0250	"	0.5130		78%	70-130		
Surrogate: Dichlorodifluoromethane	0.552		2.50E-3	0.0250	"	0.5210		106%	70-130		
Surrogate: Dichlorotetrafluoroethane	0.476		2.50E-3	0.0250	"	0.5250		91%	70-130		
Surrogate: Trichlorofluoromethane	0.508		2.50E-3	0.0250	"	0.5370		95%	70-130		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon)	0.428		2.50E-3	0.0250	"	0.5250		81%	70-130		
Surrogate: 1,1,1-Trichloroethane	0.432		2.50E-3	0.0250	"	0.5080		85%	70-130		
Surrogate: Carbon tetrachloride	0.448		2.50E-3	0.0250	"	0.5000		90%	70-130		

LCS Dup (B18B001-BS1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	0.566		2.50E-3	0.0250	ppbv	0.5310		107%	70-130	7	30
Propene	0.430		2.50E-3	0.0250	"	0.5370		80%	70-130	0.4	30
Chloromethane	0.549		2.50E-3	0.0250	"	0.5490		100%	70-130	8	30
Methanol	0.554	B, J	0.500	5.00	"	0.5170		107%	60-140	8	40
Vinyl chloride	0.506		2.50E-3	0.0250	"	0.5370		94%	70-130	5	30



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Project: Mid America Steel Drum, Inc.
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Project Manager: Alexandra Letuchy

Reported:
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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

LCS Dup (B18B001-BSD1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Isobutene	0.454		2.50E-3	0.100	ppbv	0.5300		86%	70-130	22	30
1,3-butadiene	0.479		2.50E-3	0.0250	"	0.5450		88%	70-130	3	30
Acetaldehyde	Rejected	Q	0.500	5.00	"	0.5390		%	60-140		40
Bromomethane	0.584		2.50E-3	0.0250	"	0.5540		105%	70-130	11	30
Chloroethane	0.560		2.50E-3	0.0250	"	0.5510		102%	70-130	12	30
Ethanol	0.458	J	0.0500	0.500	"	0.5060		90%	60-140	6	40
Acrolein	0.468		2.50E-3	0.0250	"	0.5180		90%	60-140	13	40
Acetonitrile	0.458		2.50E-3	0.0250	"	0.5050		91%	60-140	9	40
Isopropyl alcohol	0.434		2.50E-3	0.0250	"	0.5000		87%	60-140	5	40
Propanal	0.463		2.50E-3	0.0250	"	0.5220		89%	60-140	9	40
Acetone	0.485		0.0250	0.0250	"	0.5410		90%	60-140	7	40
Pentane	0.521		2.50E-3	0.0250	"	0.5600		93%	70-130	17	30
Isoprene	0.512		2.50E-3	0.0250	"	0.5420		94%	70-130	15	30
1,1-Dichloroethene	0.525		2.50E-3	0.0250	"	0.5220		100%	70-130	15	30
Methyl iodide	0.507		2.50E-3	0.0250	"	0.5340		95%	70-130	14	30
Acrylonitrile	0.452		0.0250	0.0250	"	0.5010		90%	60-140	8	40
Methylene chloride	0.518		2.50E-3	0.0250	"	0.5000		104%	70-130	18	30
Carbon disulfide	0.545		2.50E-3	0.0250	"	0.4990		109%	60-140	13	40
1-Propanol	0.410		0.0500	0.0500	"	0.4790		86%	60-140	8	40
Cyclopentane	0.481		0.0250	0.0250	"	0.4940		97%	70-130	29	30
Methyl tert-butyl ether	0.423		2.50E-3	0.0250	"	0.5040		84%	60-140	9	40
Methacrolein	0.415		2.50E-3	0.0250	"	0.4790		87%	60-140	10	40
1,1-Dichloroethane	0.501		2.50E-3	0.0250	"	0.4950		101%	70-130	16	30
Vinyl acetate	0.440		2.50E-3	0.0250	"	0.4950		89%	60-140	10	40
Methyl vinyl ketone	0.432		2.50E-3	0.0250	"	0.4920		88%	60-140	8	40
Butanal	0.410		0.0250	0.0250	"	0.4790		86%	60-140	7	40
Hexane	0.418		2.50E-3	0.0250	"	0.4970		84%	70-130	12	30
2-Butanone	0.440		2.50E-3	0.0250	"	0.5230		84%	60-140	10	40
cis-1,2-Dichloroethene	0.470		2.50E-3	0.0250	"	0.4960		95%	70-130	11	30
trans-1,2-Dichloroethene	0.489		2.50E-3	0.0250	"	0.5060		97%	70-130	14	30



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

LCS Dup (B18B001-BSD1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chloroform	0.503		2.50E-3	0.0250	ppbv	0.5110		98%	70-130	11	30
1,2-Dichloroethane	0.478		2.50E-3	0.0250	"	0.4950		97%	70-130	11	30
1-Butanol	0.419		0.0250	0.0500	"	0.5030		83%	60-140	5	40
Cyclohexane	0.429		0.0250	0.0250	"	0.5050		85%	70-130	9	30
Benzene	0.453		2.50E-3	0.0250	"	0.5040		90%	70-130	11	30
2-Pentanone	0.426		0.0250	0.0250	"	0.5020		85%	60-140	8	40
Pentanal	0.420		0.0250	0.0250	"	0.4940		85%	60-140	7	40
3-Pentanone	0.406		0.0250	0.0250	"	0.5070		80%	60-140	3	40
1,2-Dichloropropane	0.471		2.50E-3	0.0250	"	0.5010		94%	70-130	9	30
Trichloroethene	0.399		2.50E-3	0.0250	"	0.5010		80%	70-130	7	30
Bromodichloromethane	0.524		2.50E-3	0.0250	"	0.5240		100%	70-130	9	30
1,4-Dioxane	0.456		2.50E-3	0.0250	"	0.5300		86%	60-140	7	40
cis-1,3-Dichloropropene	0.454		2.50E-3	0.0250	"	0.5100		89%	70-130	8	30
4-Methyl-2-pentanone	0.431		2.50E-3	0.0250	"	0.5020		86%	60-140	4	40
trans-1,3-Dichloropropene	0.458		2.50E-3	0.0250	"	0.5130		89%	70-130	5	30
1,1,2-Trichloroethane	0.477		2.50E-3	0.0250	"	0.5020		95%	70-130	7	30
Dibromochloromethane	0.531		2.50E-3	0.0250	"	0.5060		105%	70-130	5	30
Toluene	0.411		2.50E-3	0.0250	"	0.4920		84%	70-130	7	30
3-Hexanone	0.422		0.0250	0.0250	"	0.5050		84%	60-140	3	40
2-Hexanone	0.379		0.0250	0.0250	"	0.4950		76%	60-140	5	40
Hexanal	0.410		0.0250	0.0250	"	0.5010		82%	60-140	6	40
1,2-Dibromoethane (EDB)	0.472		2.50E-3	0.0250	"	0.5080		93%	70-130	6	30
Tetrachloroethene	0.454		2.50E-3	0.0250	"	0.4990		91%	70-130	5	30
Chlorobenzene	0.430		2.50E-3	0.0250	"	0.5070		85%	70-130	4	30
Ethylbenzene	0.383		2.50E-3	0.0250	"	0.4890		78%	70-130	6	30
m+p-Xylene	0.762		5.00E-3	0.0500	"	0.9850		77%	70-130	6	30
Bromoform	0.496		2.50E-3	0.0250	"	0.5240		95%	70-130	2	30
Styrene	0.412		2.50E-3	0.0250	"	0.5020		82%	70-130	3	30
1,1,2,2-Tetrachloroethane	0.481		2.50E-3	0.0250	"	0.5070		95%	70-130	3	30
o-Xylene	0.383		2.50E-3	0.0250	"	0.4860		79%	70-130	5	30



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

LCS Dup (B18B001-bsd1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3,5-Trimethylbenzene	0.399		2.50E-3	0.0250	ppbv	0.5030		79%	70-130	6	30
1,2,4-Trimethylbenzene	0.394		2.50E-3	0.0250	"	0.5020		78%	70-130	3	30
1,3-Dichlorobenzene	0.434		2.50E-3	0.0250	"	0.4980		87%	70-130	0.8	30
Benzyl chloride	0.425		2.50E-3	0.0250	"	0.5150		83%	70-130	5	30
1,4-Dichlorobenzene	0.447		2.50E-3	0.0250	"	0.5260		85%	70-130	0.8	30
1,2,3-Trimethylbenzene	0.341		2.50E-3	0.0250	"	0.4380		78%	70-130	3	30
1,2-Dichlorobenzene	0.437		2.50E-3	0.0250	"	0.5140		85%	70-130	1	30
Hexachlorobutadiene	0.432		2.50E-3	0.0250	"	0.4890		88%	70-130	1	30
1,2,4-Trichlorobenzene	0.415		2.50E-3	0.0250	"	0.5120		81%	70-130	2	30
Naphthalene	0.395		2.50E-3	0.0250	"	0.5130		77%	70-130	2	30
Surrogate: Dichlorodifluoromethane	0.591		2.50E-3	0.0250	"	0.5210		113%	70-130		
Surrogate: Dichlorotetrafluoroethane	0.522		2.50E-3	0.0250	"	0.5250		99%	70-130		
Surrogate: Trichlorofluoromethane	0.583		2.50E-3	0.0250	"	0.5370		109%	70-130		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon)	0.503		2.50E-3	0.0250	"	0.5250		96%	70-130		
Surrogate: 1,1,1-Trichloroethane	0.488		2.50E-3	0.0250	"	0.5080		96%	70-130		
Surrogate: Carbon tetrachloride	0.502		2.50E-3	0.0250	"	0.5000		100%	70-130		

Duplicate (B18B001-DUP1)

Source: 1802001-02

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3-dioxolane	0.00	J, N			ppbv		0.00				
Chlorodifluoromethane (HCFC-22) (R-22)	0.245		2.50E-3	0.0250	"		0.248			1	30
Propene + propane	0.524	J	2.50E-3	0.0250	"		0.518			1	30
Chloromethane	0.508		2.50E-3	0.0250	"		0.501			1	30
Methanol	4.49	B, J	0.500	5.00	"		4.30			5	30
Vinyl chloride	U		2.50E-3	0.0250	"		U				30
Isobutene	0.0503	J, Q	2.50E-3	0.100	"		0.0309			48	30
1,3-butadiene	4.97E-3	J	2.50E-3	0.0250	"		4.12E-3			19	30
Acetaldehyde	Rejected		0.500	5.00	"		Rejected				30
Bromomethane	9.28E-3	J, Q	2.50E-3	0.0250	"		6.72E-3			32	30



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Project Manager: Alexandra Letuchy

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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

Duplicate (B18B001-DUP1)		Source: 1802001-02			Prepared & Analyzed: Feb-01-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chloroethane	U		2.50E-3	0.0250	ppbv		0.0104				30
Ethanol	2.57		0.0500	0.500	"		2.45			5	30
Acrolein	0.0825	B, K, MI	2.50E-3	0.0250	"		0.0742			11	30
Acetonitrile	0.0631		2.50E-3	0.0250	"		0.0572			10	30
Isopropyl alcohol	0.611		2.50E-3	0.0250	"		0.602			2	30
Propanal	0.121	B	2.50E-3	0.0250	"		0.114			6	30
Acetone	3.46		0.0250	0.0250	"		3.37			3	30
Pentane	0.202		2.50E-3	0.0250	"		0.189			7	30
Isoprene	5.28E-3	J	2.50E-3	0.0250	"		7.17E-3			30	30
1,1-Dichloroethene	U		2.50E-3	0.0250	"		U				30
Methyl iodide	U		2.50E-3	0.0250	"		U				30
Acrylonitrile	U		0.0250	0.0250	"		U				30
Methylene chloride	0.301		2.50E-3	0.0250	"		0.284			6	30
Carbon disulfide	0.0111	B, J	2.50E-3	0.0250	"		8.84E-3			23	30
1-Propanol	0.652		0.0500	0.0500	"		0.657			0.7	30
Cyclopentane	0.0361		0.0250	0.0250	"		0.0323			11	30
Methyl tert-butyl ether	3.74E-3	J, Q	2.50E-3	0.0250	"		2.68E-3			33	30
Methacrolein	0.0261	B	2.50E-3	0.0250	"		0.0275			5	30
1,1-Dichloroethane	U		2.50E-3	0.0250	"		U				30
Vinyl acetate	U		2.50E-3	0.0250	"		U				30
Methyl vinyl ketone	U		2.50E-3	0.0250	"		U				30
Butanal	0.0620	B	0.0250	0.0250	"		0.0541			14	30
Hexane	0.102		2.50E-3	0.0250	"		0.0974			5	30
2-Butanone	0.880		2.50E-3	0.0250	"		0.833			5	30
cis-1,2-Dichloroethene	U		2.50E-3	0.0250	"		U				30
trans-1,2-Dichloroethene	2.69E-3	B, BC, J	2.50E-3	0.0250	"		U				30
Chloroform	0.0202	J	2.50E-3	0.0250	"		0.0189			7	30
1,2-Dichloroethane	0.0182	J	2.50E-3	0.0250	"		0.0182			0.3	30
1-Butanol	0.302		0.0250	0.0500	"		0.281			7	30
Cyclohexane	0.0550		0.0250	0.0250	"		0.0524			5	30



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

Duplicate (B18B001-DUP1)	Source: 1802001-02			Prepared & Analyzed: Feb-01-18							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	0.149		2.50E-3	0.0250	ppbv		0.145			3	30
2-Pentanone	0.0377	B	0.0250	0.0250	"		0.0368			3	30
Pentanal	0.0341	B	0.0250	0.0250	"		0.0353			3	30
3-Pentanone	U	B	0.0250	0.0250	"		U				30
1,2-Dichloropropane	5.75E-3	J	2.50E-3	0.0250	"		5.46E-3			5	30
Trichloroethene	4.28E-3	B, J	2.50E-3	0.0250	"		4.60E-3			7	30
Bromodichloromethane	U		2.50E-3	0.0250	"		U				30
1,4-Dioxane	U		2.50E-3	0.0250	"		U				30
cis-1,3-Dichloropropene	U		2.50E-3	0.0250	"		U				30
4-Methyl-2-pentanone	0.0641	B	2.50E-3	0.0250	"		0.0640			0.2	30
trans-1,3-Dichloropropene	U		2.50E-3	0.0250	"		U				30
1,1,2-Trichloroethane	U		2.50E-3	0.0250	"		U				30
Dibromochloromethane	U		2.50E-3	0.0250	"		U				30
Toluene	0.375		2.50E-3	0.0250	"		0.368			2	30
3-Hexanone	U		0.0250	0.0250	"		U				30
2-Hexanone	U		0.0250	0.0250	"		U				30
Hexanal	0.0814	B	0.0250	0.0250	"		0.0787			3	30
1,2-Dibromoethane (EDB)	U		2.50E-3	0.0250	"		U				30
Tetrachloroethene	0.0577		2.50E-3	0.0250	"		0.0548			5	30
Chlorobenzene	U		2.50E-3	0.0250	"		U				30
Ethylbenzene	0.0661		2.50E-3	0.0250	"		0.0653			1	30
m+p-Xylene	0.227		5.00E-3	0.0500	"		0.224			1	30
Bromoform	2.88E-3	B, J	2.50E-3	0.0250	"		U				30
Styrene	0.0672		2.50E-3	0.0250	"		0.0620			8	30
1,1,2,2-Tetrachloroethane	U		2.50E-3	0.0250	"		U				30
o-Xylene	0.0712		2.50E-3	0.0250	"		0.0674			6	30
1,3,5-Trimethylbenzene	0.0219	B, J	2.50E-3	0.0250	"		0.0215			2	30
1,2,4-Trimethylbenzene	0.0660		2.50E-3	0.0250	"		0.0627			5	30
1,3-Dichlorobenzene	U		2.50E-3	0.0250	"		U				30
Benzyl chloride	7.65E-3	B, J	2.50E-3	0.0250	"		U				30



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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

Duplicate (B18B001-DUP1)		Source: 1802001-02			Prepared & Analyzed: Feb-01-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,4-Dichlorobenzene	3.20E-3	B, BC, J	2.50E-3	0.0250	ppbv		U				30
1,2,3-Trimethylbenzene	U		2.50E-3	0.0250	"		0.0219				30
1,2-Dichlorobenzene	U		2.50E-3	0.0250	"		U				30
Hexachlorobutadiene	U		2.50E-3	0.0250	"		U				30
1,2,4-Trichlorobenzene	U		2.50E-3	0.0250	"		U				30
Naphthalene	7.62E-3	B, J	2.50E-3	0.0250	"		8.18E-3			7	30
Surrogate: Dichlorodifluoromethane	0.533		2.50E-3	0.0250	"	0.5100		105%	70-130		
Surrogate: Dichlorotetrafluoroethane	0.0171		2.50E-3	0.0250	"	2.000E-2		86%	60-140		
Surrogate: Trichlorofluoromethane	0.240		2.50E-3	0.0250	"	0.2350		102%	70-130		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon)	0.0736		2.50E-3	0.0250	"	7.200E-2		102%	70-130		
Surrogate: 1,1,1-Trichloroethane	2.56E-3		2.50E-3	0.0250	"	4.000E-3		64%	50-150		
Surrogate: Carbon tetrachloride	0.0859		2.50E-3	0.0250	"	8.300E-2		104%	70-130		

MRL Check (B18B001-MRL1)

MRL Check (B18B001-MRL1)		Prepared & Analyzed: Feb-01-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	0.432		0.0250	0.250	ppbv	0.5310		81%	50-150		
Propene	1.08	Q	0.0250	0.250	"	0.5370		201%	50-150		
Chloromethane	0.516		0.0250	0.250	"	0.5490		94%	50-150		
Methanol	0.386	B, J	0.370	50.0	"	0.5170		75%	50-150		
Vinyl chloride	0.407		0.0250	0.250	"	0.5370		76%	50-150		
Isobutene	U	Q	0.0250	1.00	"	0.5300		%	50-150		
1,3-butadiene	0.341		0.0250	0.250	"	0.5450		63%	50-150		
Acetaldehyde	Rejected	Q	5.00	50.0	"	0.5390		%	50-150		
Bromomethane	0.525		0.0250	0.250	"	0.5540		95%	50-150		
Chloroethane	0.483		0.0250	0.250	"	0.5510		88%	50-150		
Ethanol	0.674	J	0.500	5.00	"	0.5060		133%	50-150		
Acrolein	0.405	B	0.0250	0.250	"	0.5180		78%	50-150		
Acetonitrile	0.407		0.0250	0.250	"	0.5050		81%	50-150		
Isopropyl alcohol	0.394	B	0.0250	0.250	"	0.5000		79%	50-150		



Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60605

Project: Mid America Steel Drum, Inc.
Project Number: [none]
Project Manager: Alexandra Letuchy

Reported:
Mar-28-18 09:55

Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

MRL Check (B18B001-MRL1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Propanal	0.410	B	0.0250	0.250	ppbv	0.5220		78%	50-150		
Acetone	0.466	B	0.250	0.250	"	0.5410		86%	50-150		
Pentane	0.521		0.0250	0.250	"	0.5600		93%	50-150		
Isoprene	0.484		0.0250	0.250	"	0.5420		89%	50-150		
1,1-Dichloroethene	0.464		0.0250	0.250	"	0.5220		89%	50-150		
Methyl iodide	0.526		0.0250	0.250	"	0.5340		99%	50-150		
Acrylonitrile	0.396		0.250	0.250	"	0.5010		79%	50-150		
Methylene chloride	0.465		0.0250	0.250	"	0.5000		93%	50-150		
Carbon disulfide	0.485		0.0250	0.250	"	0.4990		97%	50-150		
1-Propanol	0.207	B, J, Q	0.200	0.500	"	0.4790		43%	50-150		
Cyclopentane	0.370		0.250	0.250	"	0.4940		75%	50-150		
Methyl tert-butyl ether	0.376		0.0250	0.250	"	0.5040		75%	50-150		
Methacrolein	0.397	B	0.0250	0.250	"	0.4790		83%	50-150		
1,1-Dichloroethane	0.450		0.0250	0.250	"	0.4950		91%	50-150		
Vinyl acetate	0.372		0.0250	0.250	"	0.4950		75%	50-150		
Methyl vinyl ketone	0.387		0.0250	0.250	"	0.4920		79%	50-150		
Butanal	0.384	B	0.250	0.250	"	0.4790		80%	50-150		
Hexane	0.387		0.0250	0.250	"	0.4970		78%	50-150		
2-Butanone	0.380	B	0.0250	0.250	"	0.5230		73%	50-150		
cis-1,2-Dichloroethene	0.426		0.0250	0.250	"	0.4960		86%	50-150		
trans-1,2-Dichloroethene	0.435	B	0.0250	0.250	"	0.5060		86%	50-150		
Chloroform	0.475		0.0250	0.250	"	0.5110		93%	50-150		
1,2-Dichloroethane	0.443		0.0250	0.250	"	0.4950		90%	50-150		
1-Butanol	0.349	J	0.250	0.500	"	0.5030		69%	50-150		
Cyclohexane	0.402		0.250	0.250	"	0.5050		80%	50-150		
Benzene	0.428		0.0250	0.250	"	0.5040		85%	50-150		
2-Pentanone	0.367	B	0.250	0.250	"	0.5020		73%	50-150		
3-Pentanone	0.427	B	0.250	0.250	"	0.5070		84%	50-150		
Pentanal	0.248	B, J	0.230	0.250	"	0.4940		50%	50-150		
1,2-Dichloropropane	0.444		0.0250	0.250	"	0.5010		89%	50-150		



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Project Number: [none]
Project Manager: Alexandra Letuchy

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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

MRL Check (B18B001-MRL1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Trichloroethene	0.423		0.0250	0.250	ppbv	0.5010		84%	50-150		
Bromodichloromethane	0.481		0.0250	0.250	"	0.5240		92%	50-150		
1,4-Dioxane	0.338		0.0250	0.250	"	0.5300		64%	50-150		
cis-1,3-Dichloropropene	0.396		0.0250	0.250	"	0.5100		78%	50-150		
4-Methyl-2-pentanone	0.368	B	0.0250	0.250	"	0.5020		73%	50-150		
trans-1,3-Dichloropropene	0.416		0.0250	0.250	"	0.5130		81%	50-150		
1,1,2-Trichloroethane	0.434		0.0250	0.250	"	0.5020		86%	50-150		
Dibromochloromethane	0.490		0.0250	0.250	"	0.5060		97%	50-150		
Toluene	0.351	B	0.0250	0.250	"	0.4920		71%	50-150		
3-Hexanone	0.360		0.250	0.250	"	0.5050		71%	50-150		
2-Hexanone	0.474		0.250	0.250	"	0.4950		96%	50-150		
Hexanal	0.371	B	0.250	0.250	"	0.5010		74%	50-150		
1,2-Dibromoethane (EDB)	0.420		0.0250	0.250	"	0.5080		83%	50-150		
Tetrachloroethene	0.490		0.0250	0.250	"	0.4990		98%	50-150		
Chlorobenzene	0.370		0.0250	0.250	"	0.5070		73%	50-150		
Ethylbenzene	0.339		0.0250	0.250	"	0.4890		69%	50-150		
m+p-Xylene	0.682		0.0500	0.500	"	0.9850		69%	50-150		
Bromoform	0.536		0.0250	0.250	"	0.5240		102%	50-150		
Styrene	0.448	B	0.0250	0.250	"	0.5020		89%	50-150		
1,1,2,2-Tetrachloroethane	0.433		0.0250	0.250	"	0.5070		85%	50-150		
o-Xylene	0.318		0.0250	0.250	"	0.4860		65%	50-150		
1,3,5-Trimethylbenzene	0.340	B	0.0250	0.250	"	0.5030		68%	50-150		
1,2,4-Trimethylbenzene	0.328		0.0250	0.250	"	0.5020		65%	50-150		
1,3-Dichlorobenzene	0.395		0.0250	0.250	"	0.4980		79%	50-150		
Benzyl chloride	0.316		0.0250	0.250	"	0.5150		61%	50-150		
1,4-Dichlorobenzene	0.406		0.0250	0.250	"	0.5260		77%	50-150		
1,2,3-Trimethylbenzene	0.298		0.0250	0.250	"	0.4380		68%	50-150		
1,2-Dichlorobenzene	0.416		0.0250	0.250	"	0.5140		81%	50-150		
Hexachlorobutadiene	0.446		0.0250	0.250	"	0.4890		91%	50-150		
1,2,4-Trichlorobenzene	0.368		0.0250	0.250	"	0.5120		72%	50-150		



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Air Division, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: Mid America Steel Drum, Inc. Project Number: [none] Project Manager: Alexandra Letuchy	Reported: Mar-28-18 09:55
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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B18B001 - ColdTrap Dehydration

MRL Check (B18B001-MRL1)

Prepared & Analyzed: Feb-01-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Naphthalene	0.276	B	0.0250	0.250	ppbv	0.5130		54%	50-150		
Surrogate: Dichlorodifluoromethane	0.511		0.0250	0.250	"	0.5210		98%	70-130		
Surrogate: Dichlorotetrafluoroethane	0.521		0.0250	0.250	"	0.5250		99%	60-140		
Surrogate: Trichlorofluoromethane	0.527		0.0250	0.250	"	0.5370		98%	70-130		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon	0.526		0.0250	0.250	"	0.5250		100%	70-130		
Surrogate: 1,1,1-Trichloroethane	0.450		0.0250	0.250	"	0.5080		89%	50-150		
Surrogate: Carbon tetrachloride	0.461		0.0250	0.250	"	0.5000		92%	70-130		



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Project: Mid America Steel Drum, Inc.
Project Number: [none]
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Notes and Definitions

- R Rejected
- N There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
- MI Matrix interference
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- BC Analyte is detected in the sample within 5x the amount detected in the canister certification blank and may have a high bias from residual contamination in the canister used to sample.
- B Analyte concentration is < 5x that in the associated method blank(s); this concentration may be a high-bias estimate.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded