UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

LABORATORY ACCREDITATION BUREAU
ACCREDITED ISO/IEC 17025
Certificate # L2280 Testing

Date: **4/13/2018**

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 WAYNE WHIPPLE Digitally signed by WAYNE WHIPPLE Date: 2018.04.13 14:12:08 -05'00'

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

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

Wayne J. Whipple, Ph.D.
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General Information:

A total of four 2.7 L canisters were received on 14 February, 2018 and 5 March 2018. They were logged in under work orders 1802002 and 1803001 respectively. One sample, 1802002-02 (sample 504) had arrived with the valve left open causing it to be cancelled for analysis (Qualtrax NCR 13821). The remaining canisters were received in good condition. All the remaining 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 stated in the GMAP QAPP_v3.0_2016-05-13 Final Signed.

Preliminary results were sent on February 20, 2018 (1702002) and March 8, 2018(1803001). Detection and reporting limits along with data qualifiers have been changed and added to account for interferences found in the sample chromatograms and to allow reporting limits and detection limits to be reported for specific requested detection limits. The data is reported to the detection limits although the detection limits have been raised to match reporting limits for most of the compounds.

Sample Analysis and Results:

The 1802002-01 sample was analyzed in two different batches because many of the first batch (B18B006) calibration and calibration check compounds were out of tolerances along with having more concentrated sample monitoring compound results than expected. The second batch (B18C001) had better quality assurance and therefore data is reported from that batch with the exception of hexachlorobutadiene. The reporting limit in the first batch is lower and the first batch passed the QA/QC criteria for Hexachlorobutadiene. The other reorting limits for that sample had to be raised by a dilution factor of 2 because the sample needed to be diluted to an acceptable pressure to properly analyze the sample.

The data is reported to the lower 2.5 pptv detection limit for a subset of compounds to meet the requested lower risk thresholds. The other compound's detection and reporting limits were raised to 100 pptv to allow for more efficient reporting of blank interferences and calibration deviations. It would have been preferable to report most of the data to a 100 pptv reporting limit and the remaining lower detection limit compounds reported to their 2.5 pptv MDL but the data reporting software does not allow for compound specific reporting of detection and reporting limits within a specified analytical report. The data between the reporting and detection limit are flagged as estimated "J" for the subset of compounds with low detection limits as required by our QA/QC procedure although the data is believed to be of good quality based on the sample monitoring compounds and a few other compounds that are always present in samples in the Northern Hemisphere. Almost all the sample monitoring compounds and other compounds that have known background concentrations in the northern hemisphere like bromomethane, chloromethane and chloroform, are very close to the expected concentrations in the upwind samples and perform within acceptance criteria stated in the SOP. Details are in the

QC section.
Acrolein and acrylonitrile and 1,3-butadiene have major ions present but are believed to be influenced from coeluting non-target compounds and therefore are flagged as "MI", matrix interference and the detection levels have been raised to the concentration result for each compound because the spectra show significant 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".

Quality Control:

The standard concentrations below the 100 pptv concentration will not pass acceptance criteria with the calibration method used and therefore most compounds have their reporting limit raised to the 100 pptv concentration except for the compounds that have lower risk concentrations (see email in data package). If the calibration curve was not forced through zero and the lowest 2.5 concentration level was not included almost every compound would pass all the calibration criteria but the sample monitoring compounds and few other compounds that are present in background air results would not be in the expected global background concentrations. These compounds include chloroform which is a requested compound. Therefore, it has been determined to use the curve fit that provided the most reliable results for the known concentrations of selected compounds. The compounds that have requested lower concentrations than the 100 pptv level have their detection levels kept at the 2.5 pptv concentration and if the values reported for these compounds are detected between the detection and reported limits there is an estimated qualifier in accordance with our QA/QC procedure.
The very low concentration detection limits result in considerable background contamination from the system as demonstrated by the method blank and the canister itself by the canister blank. If a sample result is within 5 times the method blank the sample is flagged for potential blank contamination "B". If the sample result is not flagged "B" and is within 5 times the blank canister result the result is qualified "BC" for a potential canister contamination.
Acetaldehyde did not pass the calibration criteria with severely nonlinear behavior and therefore was rejected.
Methanol and ethanol results were above the calibration curve in sample B18C001-DUP1. Additionally, **methanol and acetone** were above the calibration curve in sample 1803001-02. Therefore, the compounds are flagged "J" and "E" as estimated.
Acrolein and Acrylonitrile spectra cannot be resolved from interfering compounds that have similar ions. The concentration of these compounds can't be determined below the result reported in the sample causing the detection limits to be raised to the concentration reported because the interferences.
Many sample monitoring compounds have had their detection levels lowered to a result that allows them to be reported for data quality purposes. They still have an estimated qualifier on most, but it can be seen that most of the concentrations are within the expected ranges.

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	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
0633	1802002-01	Air	Feb-13-18 08:40	Feb-14-18 10:00
0821	1803001-01	Air	Mar-02-18 10:40	Mar-05-18 10:00
0129	1803001-02	Air	Mar-02-18 10:50	Mar-05-18 10:00

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77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

0633 (1802002-01RE2) **Matrix: Air** **Sampled: Feb-13-18 08:40** **Received: Feb-14-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Chlorodifluoromethane (HCFC-22) (R-22)	**0.302**		0.100	0.200	ppbv	2	B18C001	Feb-13-18	Mar-06-18
Propene + propane	**2.73**		0.100	0.200	"	"	"	"	"
Chloromethane	**0.537**		0.100	0.200	"	"	"	"	"
Vinyl chloride	**U**		0.100	0.200	"	"	"	"	"
Isobutene	**1.47**		0.100	0.200	"	"	"	"	"
1,3-butadiene	**0.252**	MI	5.00E-3	0.200	"	"	"	"	"
Acetaldehyde	**Rejected**		0.100	0.200	"	"	"	"	"
Bromomethane	**U**		0.100	0.200	"	"	"	"	"
Chloroethane	**U**		0.100	0.200	"	"	"	"	"
Acrolein	**U**	MI	0.760	0.760	"	"	"	"	"
Acetonitrile	**U**		0.100	0.200	"	"	"	"	"
Isopropyl alcohol	**1.55**		0.100	0.200	"	"	"	"	"
Propanal	**0.399**	B	0.100	0.200	"	"	"	"	"
Acetone	**2.88**	B	0.100	0.200	"	"	"	"	"
Pentane	**1.22**		0.100	0.200	"	"	"	"	"
Isoprene	**U**		0.100	0.200	"	"	"	"	"
1,1-Dichloroethene	**U**		0.100	0.200	"	"	"	"	"
Methyl iodide	**U**		0.100	0.200	"	"	"	"	"
Acrylonitrile	**U**	MI	0.100	0.200	"	"	"	"	"
Methylene chloride	**0.309**		0.100	0.200	"	"	"	"	"
Carbon disulfide	**U**		0.100	0.200	"	"	"	"	"
1-Propanol	**0.371**		0.100	0.200	"	"	"	"	"
Cyclopentane	**0.372**		0.100	0.200	"	"	"	"	"
Methyl tert-butyl ether	**U**		0.100	0.200	"	"	"	"	"
Methacrolein	**0.136**	B, J	0.100	0.200	"	"	"	"	"
1,1-Dichloroethane	**U**		0.100	0.200	"	"	"	"	"
Vinyl acetate	**U**		0.100	0.200	"	"	"	"	"
Methyl vinyl ketone	**0.105**	J	0.100	0.200	"	"	"	"	"
Butanal	**0.172**	B, J	0.100	0.200	"	"	"	"	"

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77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

0633 (1802002-01RE2) **Matrix: Air** **Sampled: Feb-13-18 08:40** **Received: Feb-14-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Hexane	**0.594**		0.100	0.200	ppbv	2	B18C001	Feb-13-18	Mar-06-18
2-Butanone	**0.928**		0.100	0.200	"	"	"	"	"
cis-1,2-Dichloroethene	U		0.100	0.200	"	"	"	"	"
trans-1,2-Dichloroethene	U		0.100	0.200	"	"	"	"	"
Chloroform	**0.0368**	J	5.00E-3	0.100	"	"	"	"	"
1,2-Dichloroethane	**0.0259**	J	5.00E-3	0.200	"	"	"	"	"
1-Butanol	**0.213**		0.100	0.200	"	"	"	"	"
Cyclohexane	U		0.100	0.200	"	"	"	"	"
Benzene	**0.828**		0.100	0.200	"	"	"	"	"
2-Pentanone	U		0.100	0.200	"	"	"	"	"
Pentanal	U		0.100	0.200	"	"	"	"	"
3-Pentanone	U		0.100	0.200	"	"	"	"	"
1,2-Dichloropropane	U		0.100	0.200	"	"	"	"	"
Trichloroethene	**0.258**		5.00E-3	0.200	"	"	"	"	"
Bromodichloromethane	U		0.100	0.200	"	"	"	"	"
1,4-Dioxane	U		0.100	0.200	"	"	"	"	"
cis-1,3-Dichloropropene	U		0.100	0.200	"	"	"	"	"
4-Methyl-2-pentanone	U		0.100	0.200	"	"	"	"	"
trans-1,3-Dichloropropene	U		0.100	0.200	"	"	"	"	"
1,1,2-Trichloroethane	U		0.100	0.200	"	"	"	"	"
Dibromochloromethane	U		0.100	0.200	"	"	"	"	"
Toluene	**1.06**		0.100	0.200	"	"	"	"	"
3-Hexanone	U		0.100	0.200	"	"	"	"	"
2-Hexanone	U		0.100	0.200	"	"	"	"	"
Hexanal	**0.143**	B, J	0.100	0.200	"	"	"	"	"
1,2-Dibromoethane (EDB)	U		0.100	0.200	"	"	"	"	"
Tetrachloroethene	U		0.100	0.200	"	"	"	"	"
Chlorobenzene	U		0.100	0.200	"	"	"	"	"
Ethylbenzene	**0.175**	J	0.100	0.200	"	"	"	"	"
m+p-Xylene	**0.614**		0.100	0.200	"	"	"	"	"
Bromoform	U		0.100	0.200	"	"	"	"	"
Styrene	U		0.100	0.200	"	"	"	"	"
1,1,2,2-Tetrachloroethane	U		0.100	0.200	"	"	"	"	"
o-Xylene	**0.222**		0.100	0.200	"	"	"	"	"
1,3,5-Trimethylbenzene	**0.103**	J	0.100	0.200	"	"	"	"	"

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Air Toxics by GC/MS, EPA TO-15 (modified)
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0633 (1802002-01RE2) Matrix: Air Sampled: Feb-13-18 08:40 Received: Feb-14-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,2,4-Trimethylbenzene	**0.239**		0.100	0.200	ppbv	2	B18C001	Feb-13-18	Mar-06-18
1,3-Dichlorobenzene	U		0.100	0.200	"	"	"	"	"
Benzyl chloride	U		0.100	0.200	"	"	"	"	"
1,4-Dichlorobenzene	U		0.100	0.200	"	"	"	"	"
1,2,3-Trimethylbenzene	U		0.100	0.200	"	"	"	"	"
1,2-Dichlorobenzene	U		0.100	0.200	"	"	"	"	"
1,2,4-Trichlorobenzene	U		0.100	0.200	"	"	"	"	"
Naphthalene	U		0.100	0.200	"	"	"	"	"

Surogate	Result		%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.548		*107%*	*70-130*	"	"	"
Dichlorotetrafluoroethane	0.0201		*100%*	*60-140*	"	"	"
Trichlorofluoromethane	0.243		*103%*	*70-130*	"	"	"
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.0904		*126%*	*70-130*	"	"	"
1,1,1-Trichloroethane	7.68E-3	Q	*192%*	*50-150*	"	"	"
Carbon tetrachloride	0.0864		*104%*	*70-130*	"	"	"

0633 (1802002-01RE3) Matrix: Air Sampled: Feb-13-18 08:40 Received: Feb-14-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Methanol	**23.1**	B	1.00	2.00	ppbv	2	B18C001	Feb-13-18	Mar-06-18
Ethanol	**13.2**		1.00	2.00	"	"	"	"	"

Surogate	Result		%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.665		*130%*	*70-130*	"	"	"
Dichlorotetrafluoroethane	0.0272		*136%*	*60-140*	"	"	"
Trichlorofluoromethane	0.315	Q	*134%*	*70-130*	"	"	"
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.0988	Q	*137%*	*70-130*	"	"	"
Carbon tetrachloride	0.107		*128%*	*70-130*	"	"	"

0821 (1803001-01) Matrix: Air Sampled: Mar-02-18 10:40 Received: Mar-05-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Chlorodifluoromethane (HCFC-22) (R-22)	**0.255**		0.100	0.100	ppbv	1	B18C001	Mar-05-18	Mar-05-18

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Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

Air Toxics by GC/MS, EPA TO-15 (modified)
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0821 (1803001-01) **Matrix: Air** **Sampled: Mar-02-18 10:40** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Propene + propane	**0.651**		0.100	0.100	ppbv	1	B18C001	Mar-05-18	Mar-05-18
Chloromethane	**0.550**		0.100	0.100	"	"	"	"	"
Vinyl chloride	U		0.100	0.100	"	"	"	"	"
Isobutene	**0.219**		0.100	0.100	"	"	"	"	"
1,3-butadiene	**5.30E-3**	MI, J	2.50E-3	0.100	"	"	"	"	"
Acetaldehyde	**Rejected**		0.100	0.100	"	"	"	"	"
Bromomethane	U		0.100	0.100	"	"	"	"	"
Chloroethane	U		0.100	0.100	"	"	"	"	"
Acrolein	U	MI	0.110	0.110	"	"	"	"	"
Acetonitrile	U		0.100	0.100	"	"	"	"	"
Isopropyl alcohol	**0.165**	B	0.100	0.100	"	"	"	"	"
Propanal	**0.168**	B	0.100	0.100	"	"	"	"	"
Acetone	**1.48**	B	0.100	0.100	"	"	"	"	"
Pentane	**0.214**		0.100	0.100	"	"	"	"	"
Isoprene	U		0.100	0.100	"	"	"	"	"
1,1-Dichloroethene	U		0.100	0.100	"	"	"	"	"
Methyl iodide	U		0.100	0.100	"	"	"	"	"
Acrylonitrile	U	MI	0.100	0.100	"	"	"	"	"
Methylene chloride	**0.132**		0.100	0.100	"	"	"	"	"
Carbon disulfide	U		0.100	0.100	"	"	"	"	"
1-Propanol	U		0.100	0.100	"	"	"	"	"
Cyclopentane	U		0.100	0.100	"	"	"	"	"
Methyl tert-butyl ether	U		0.100	0.100	"	"	"	"	"
Methacrolein	U		0.100	0.100	"	"	"	"	"
1,1-Dichloroethane	U		0.100	0.100	"	"	"	"	"
Vinyl acetate	U		0.100	0.100	"	"	"	"	"
Methyl vinyl ketone	U		0.100	0.100	"	"	"	"	"
Butanal	**0.145**		0.100	0.100	"	"	"	"	"
Hexane	U		0.100	0.100	"	"	"	"	"
2-Butanone	**0.256**		0.100	0.100	"	"	"	"	"
cis-1,2-Dichloroethene	U		0.100	0.100	"	"	"	"	"
trans-1,2-Dichloroethene	U		0.100	0.100	"	"	"	"	"
Chloroform	**0.0201**	J	2.50E-3	0.0500	"	"	"	"	"
1,2-Dichloroethane	**0.0197**	J	2.50E-3	0.100	"	"	"	"	"
1-Butanol	U		0.100	0.100	"	"	"	"	"

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US EPA Region 5 Chicago Regional Laboratory

0821 (1803001-01) **Matrix: Air** **Sampled: Mar-02-18 10:40** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Cyclohexane	U		0.100	0.100	ppbv	1	B18C001	Mar-05-18	Mar-05-18
Benzene	**0.164**		0.100	0.100	"	"	"	"	"
2-Pentanone	U		0.100	0.100	"	"	"	"	"
3-Pentanone	U		0.100	0.100	"	"	"	"	"
Pentanal	U		0.100	0.100	"	"	"	"	"
1,2-Dichloropropane	U		0.100	0.100	"	"	"	"	"
Trichloroethene	**6.29E-3**	J	2.50E-3	0.100	"	"	"	"	"
Bromodichloromethane	U		0.100	0.100	"	"	"	"	"
1,4-Dioxane	U		0.100	0.100	"	"	"	"	"
cis-1,3-Dichloropropene	U		0.100	0.100	"	"	"	"	"
4-Methyl-2-pentanone	U		0.100	0.100	"	"	"	"	"
trans-1,3-Dichloropropene	U		0.100	0.100	"	"	"	"	"
1,1,2-Trichloroethane	U		0.100	0.100	"	"	"	"	"
Dibromochloromethane	U		0.100	0.100	"	"	"	"	"
Toluene	**0.177**		0.100	0.100	"	"	"	"	"
3-Hexanone	U		0.100	0.100	"	"	"	"	"
2-Hexanone	U		0.100	0.100	"	"	"	"	"
Hexanal	U		0.100	0.100	"	"	"	"	"
1,2-Dibromoethane (EDB)	U		0.100	0.100	"	"	"	"	"
Tetrachloroethene	U		0.100	0.100	"	"	"	"	"
Chlorobenzene	U		0.100	0.100	"	"	"	"	"
Ethylbenzene	U		0.100	0.100	"	"	"	"	"
m+p-Xylene	U		0.100	0.100	"	"	"	"	"
Bromoform	U		0.100	0.100	"	"	"	"	"
Styrene	U		0.100	0.100	"	"	"	"	"
1,1,2,2-Tetrachloroethane	U		0.100	0.100	"	"	"	"	"
o-Xylene	U		0.100	0.100	"	"	"	"	"
1,3,5-Trimethylbenzene	U		0.100	0.100	"	"	"	"	"
1,2,4-Trimethylbenzene	U		0.100	0.100	"	"	"	"	"
1,3-Dichlorobenzene	U		0.100	0.100	"	"	"	"	"
Benzyl chloride	U		0.100	0.100	"	"	"	"	"
1,4-Dichlorobenzene	U		0.100	0.100	"	"	"	"	"
1,2,3-Trimethylbenzene	U		0.100	0.100	"	"	"	"	"
1,2-Dichlorobenzene	U		0.100	0.100	"	"	"	"	"

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Chicago Regional Laboratory

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

Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

0821 (1803001-01) **Matrix: Air** **Sampled: Mar-02-18 10:40** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Hexachlorobutadiene	**4.30E-3**	B, J	2.50E-3	0.100	ppbv	1	B18C001	Mar-05-18	Mar-05-18
1,2,4-Trichlorobenzene	**U**		0.100	0.100	"	"	"	"	"
Naphthalene	**U**		0.100	0.100	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.529	*104%*	*70-130*	"	"	"
Dichlorotetrafluoroethane	0.0179	*89%*	*60-140*	"	"	"
Trichlorofluoromethane	0.237	*101%*	*70-130*	"	"	"
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.0850	*118%*	*70-130*	"	"	"
1,1,1-Trichloroethane	2.51E-3	*63%*	*50-150*	"	"	"
Carbon tetrachloride	0.0832	*100%*	*70-130*	"	"	"

0821 (1803001-01RE1) **Matrix: Air** **Sampled: Mar-02-18 10:40** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Methanol	**7.59**	B	1.00	1.00	ppbv	1	B18C001	Mar-05-18	Mar-06-18
Ethanol	**2.67**		1.00	1.00	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.656	*129%*	*70-130*	"	"	"
Dichlorotetrafluoroethane	0.0198	*99%*	*60-140*	"	"	"
Trichlorofluoromethane	0.290	*123%*	*70-130*	"	"	"
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.0954	Q *132%*	*70-130*	"	"	"
1,1,1-Trichloroethane	U	Q *%*	*50-150*	"	"	"
Carbon tetrachloride	0.0948	*114%*	*70-130*	"	"	"

0129 (1803001-02) **Matrix: Air** **Sampled: Mar-02-18 10:50** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Chlorodifluoromethane (HCFC-22) (R-22)	**0.253**		0.100	0.100	ppbv	1	B18C001	Mar-05-18	Mar-06-18
Propene + propane	**0.985**		0.100	0.100	"	"	"	"	"
Chloromethane	**0.569**		0.100	0.100	"	"	"	"	"
Vinyl chloride	**U**		0.100	0.100	"	"	"	"	"
1,3-butadiene	**0.0350**	MI, J	2.50E-3	0.100	"	"	"	"	"

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77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

0129 (1803001-02) **Matrix: Air** **Sampled: Mar-02-18 10:50** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Acetaldehyde	**Rejected**		0.100	0.100	ppbv	1	B18C001	Mar-05-18	Mar-06-18
Bromomethane	**U**		0.100	0.100	"	"	"	"	"
Chloroethane	**U**		0.100	0.100	"	"	"	"	"
Acrolein	**U**	MI	0.270	0.270	"	"	"	"	"
Acetonitrile	**0.105**		0.100	0.100	"	"	"	"	"
Propanal	**0.395**		0.100	0.100	"	"	"	"	"
Pentane	**1.03**		0.100	0.100	"	"	"	"	"
Isoprene	**U**		0.100	0.100	"	"	"	"	"
1,1-Dichloroethene	**U**		0.100	0.100	"	"	"	"	"
Methyl iodide	**U**		0.100	0.100	"	"	"	"	"
Acrylonitrile	**U**	MI	0.100	0.100	"	"	"	"	"
Carbon disulfide	**U**		0.100	0.100	"	"	"	"	"
1-Propanol	**0.303**		0.100	0.100	"	"	"	"	"
Cyclopentane	**U**		0.100	0.100	"	"	"	"	"
Methyl tert-butyl ether	**U**		0.100	0.100	"	"	"	"	"
Methacrolein	**0.181**		0.100	0.100	"	"	"	"	"
1,1-Dichloroethane	**U**		0.100	0.100	"	"	"	"	"
Vinyl acetate	**U**		0.100	0.100	"	"	"	"	"
Methyl vinyl ketone	**U**		0.100	0.100	"	"	"	"	"
Butanal	**0.423**		0.100	0.100	"	"	"	"	"
Hexane	**0.111**		0.100	0.100	"	"	"	"	"
2-Butanone	**0.650**		0.100	0.100	"	"	"	"	"
cis-1,2-Dichloroethene	**U**		0.100	0.100	"	"	"	"	"
trans-1,2-Dichloroethene	**0.508**		0.100	0.100	"	"	"	"	"
Chloroform	**0.0823**		2.50E-3	0.0500	"	"	"	"	"
1,2-Dichloroethane	**0.0198**	J	2.50E-3	0.100	"	"	"	"	"
1-Butanol	**0.439**		0.100	0.100	"	"	"	"	"
Cyclohexane	**U**		0.100	0.100	"	"	"	"	"
Benzene	**0.207**		0.100	0.100	"	"	"	"	"
2-Pentanone	**U**		0.100	0.100	"	"	"	"	"
3-Pentanone	**U**		0.100	0.100	"	"	"	"	"
Pentanal	**0.162**		0.100	0.100	"	"	"	"	"
1,2-Dichloropropane	**U**		0.100	0.100	"	"	"	"	"
Trichloroethene	**0.0572**	J	2.50E-3	0.100	"	"	"	"	"
Bromodichloromethane	**U**		0.100	0.100	"	"	"	"	"

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77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

0129 (1803001-02) **Matrix: Air** **Sampled: Mar-02-18 10:50** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,4-Dioxane	U		0.100	0.100	ppbv	1	B18C001	Mar-05-18	Mar-06-18
cis-1,3-Dichloropropene	U		0.100	0.100	"	"	"	"	"
4-Methyl-2-pentanone	**0.137**		0.100	0.100	"	"	"	"	"
trans-1,3-Dichloropropene	U		0.100	0.100	"	"	"	"	"
1,1,2-Trichloroethane	U		0.100	0.100	"	"	"	"	"
Dibromochloromethane	U		0.100	0.100	"	"	"	"	"
Toluene	**1.32**		0.100	0.100	"	"	"	"	"
3-Hexanone	U		0.100	0.100	"	"	"	"	"
2-Hexanone	U		0.100	0.100	"	"	"	"	"
Hexanal	**0.476**		0.100	0.100	"	"	"	"	"
1,2-Dibromoethane (EDB)	U		0.100	0.100	"	"	"	"	"
Tetrachloroethene	U		0.100	0.100	"	"	"	"	"
Chlorobenzene	U		0.100	0.100	"	"	"	"	"
Ethylbenzene	U		0.100	0.100	"	"	"	"	"
m+p-Xylene	**0.223**		0.100	0.100	"	"	"	"	"
Bromoform	U		0.100	0.100	"	"	"	"	"
Styrene	U		0.100	0.100	"	"	"	"	"
1,1,2,2-Tetrachloroethane	U		0.100	0.100	"	"	"	"	"
o-Xylene	U		0.100	0.100	"	"	"	"	"
1,3,5-Trimethylbenzene	U		0.100	0.100	"	"	"	"	"
1,2,4-Trimethylbenzene	**0.113**		0.100	0.100	"	"	"	"	"
1,3-Dichlorobenzene	U		0.100	0.100	"	"	"	"	"
Benzyl chloride	U		0.100	0.100	"	"	"	"	"
1,4-Dichlorobenzene	U		0.100	0.100	"	"	"	"	"
1,2,3-Trimethylbenzene	U		0.100	0.100	"	"	"	"	"
1,2-Dichlorobenzene	U		0.100	0.100	"	"	"	"	"
Hexachlorobutadiene	**4.19E-3**	B, J	2.50E-3	0.100	"	"	"	"	"
1,2,4-Trichlorobenzene	U		0.100	0.100	"	"	"	"	"
Naphthalene	U		0.100	0.100	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.525	*103%*	*70-130*	"	"	"
Dichlorotetrafluoroethane	0.0179	*89%*	*60-140*	"	"	"
Trichlorofluoromethane	0.234	*100%*	*70-130*	"	"	"

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

0129 (1803001-02) **Matrix: Air** **Sampled: Mar-02-18 10:50** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.0825	*115%*	*70-130*	*B18C001*	*Mar-05-18*	*Mar-06-18*
1,1,1-Trichloroethane	5.04E-3	*126%*	*50-150*	"	"	"
Carbon tetrachloride	0.0927	*112%*	*70-130*	"	"	"

0129 (1803001-02RE1) **Matrix: Air** **Sampled: Mar-02-18 10:50** **Received: Mar-05-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Methanol	**120**	(E), B, J	1.00	1.00	ppbv	1	B18C001	Mar-05-18	Mar-06-18
Ethanol	**15.8**		1.00	1.00	"	"	"	"	"
Isopropyl alcohol	**3.87**	B	1.00	1.00	"	"	"	"	"
Acetone	**93.9**	(E), J	1.00	1.00	"	"	"	"	"
Methylene chloride	**14.5**		1.00	1.00	"	"	"	"	"

Surogate	Result		%REC	%REC Limits	Batch	Prepared	Analyzed
Dichlorodifluoromethane	0.650		*127%*	*70-130*	"	"	"
Dichlorotetrafluoroethane	0.0250		*125%*	*60-140*	"	"	"
Trichlorofluoromethane	0.298		*127%*	*70-130*	"	"	"
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	0.104	Q	*144%*	*70-130*	"	"	"
1,1,1-Trichloroethane	U	Q	*%*	*50-150*	"	"	"
Carbon tetrachloride	0.0999		*120%*	*70-130*	"	"	"

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77 West Jackson Boulevard	Project Number: [none]	**Reported:**
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Air Toxics by GC/MS, EPA TO-15 (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B18C001 - ColdTrap Dehydration

Blank (B18C001-BLK1) **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	U		0.100	0.100	ppbv						
Propene	U		0.100	0.100	"						
Chloromethane	U		0.100	0.100	"						
Methanol	**10.7**	Q	0.100	0.100	"						
Vinyl chloride	U		0.100	0.100	"						
Isobutene	U		0.100	0.100	"						
1,3-butadiene	U		2.50E-3	0.100	"						
Acetaldehyde	**Rejected**		0.100	0.100	"						
Bromomethane	U		0.100	0.100	"						
Chloroethane	U		0.100	0.100	"						
Ethanol	U		0.100	0.100	"						
Acrolein	U		0.100	0.100	"						
Acetonitrile	U		0.100	0.100	"						
Isopropyl alcohol	**0.112**	Q	0.100	0.100	"						
Propanal	**0.157**	Q	0.100	0.100	"						
Acetone	**0.426**	Q	0.100	0.100	"						
Pentane	U		0.100	0.100	"						
Isoprene	U		0.100	0.100	"						
1,1-Dichloroethene	U		0.100	0.100	"						
Methyl iodide	U		0.100	0.100	"						
Acrylonitrile	U		0.100	0.100	"						
Methylene chloride	U		0.100	0.100	"						
Carbon disulfide	U		0.100	0.100	"						
1-Propanol	U		0.100	0.100	"						

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

Batch B18C001 - ColdTrap Dehydration

Blank (B18C001-BLK1) **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Cyclopentane	U		0.100	0.100	ppbv						
Methyl tert-butyl ether	U		0.100	0.100	"						
Methacrolein	U		0.100	0.100	"						
1,1-Dichloroethane	U		0.100	0.100	"						
Vinyl acetate	U		0.100	0.100	"						
Methyl vinyl ketone	U		0.100	0.100	"						
Butanal	U		0.100	0.100	"						
Hexane	U		0.100	0.100	"						
2-Butanone	U		0.100	0.100	"						
cis-1,2-Dichloroethene	U		0.100	0.100	"						
trans-1,2-Dichloroethene	U		0.100	0.100	"						
Chloroform	U		2.50E-3	0.0500	"						
1,2-Dichloroethane	U		2.50E-3	0.100	"						
1-Butanol	U		0.100	0.100	"						
Cyclohexane	U		0.100	0.100	"						
Benzene	U		0.100	0.100	"						
2-Pentanone	U		0.100	0.100	"						
Pentanal	U		0.100	0.100	"						
3-Pentanone	U		0.100	0.100	"						
1,2-Dichloropropane	U		0.100	0.100	"						
Trichloroethene	U		2.50E-3	0.100	"						
Bromodichloromethane	U		0.100	0.100	"						
1,4-Dioxane	U		0.100	0.100	"						
cis-1,3-Dichloropropene	U		0.100	0.100	"						
4-Methyl-2-pentanone	U		0.100	0.100	"						
trans-1,3-Dichloropropene	U		0.100	0.100	"						
1,1,2-Trichloroethane	U		0.100	0.100	"						
Dibromochloromethane	U		0.100	0.100	"						
Toluene	U		0.100	0.100	"						
3-Hexanone	U		0.100	0.100	"						

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

Batch B18C001 - ColdTrap Dehydration

Blank (B18C001-BLK1) **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
2-Hexanone	U		0.100	0.100	ppbv						
Hexanal	U		0.100	0.100	"						
1,2-Dibromoethane (EDB)	U		0.100	0.100	"						
Tetrachloroethene	U		0.100	0.100	"						
Chlorobenzene	U		0.100	0.100	"						
Ethylbenzene	U		0.100	0.100	"						
m+p-Xylene	U		0.100	0.100	"						
Bromoform	U		0.100	0.100	"						
Styrene	U		0.100	0.100	"						
1,1,2,2-Tetrachloroethane	U		0.100	0.100	"						
o-Xylene	U		0.100	0.100	"						
1,3,5-Trimethylbenzene	U		0.100	0.100	"						
1,2,4-Trimethylbenzene	U		0.100	0.100	"						
1,3-Dichlorobenzene	U		0.100	0.100	"						
Benzyl chloride	U		0.100	0.100	"						
1,4-Dichlorobenzene	U		0.100	0.100	"						
1,2,3-Trimethylbenzene	U		0.100	0.100	"						
1,2-Dichlorobenzene	U		0.100	0.100	"						
Hexachlorobutadiene	**6.28E-3**	J, Q	2.50E-3	0.100	"						
1,2,4-Trichlorobenzene	U		0.100	0.100	"						
Naphthalene	U		0.100	0.100	"						
Surrogate: Dichlorodifluoromethane	*U*		0.100	0.100	*"*				*70-130*		
Surrogate: Dichlorotetrafluoroethane	*U*		2.50E-3	0.100	*"*				*60-140*		
Surrogate: Trichlorofluoromethane	*U*		2.50E-3	0.100	*"*				*70-130*		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon	*U*		2.50E-3	0.100	*"*				*70-130*		
Surrogate: 1,1,1-Trichloroethane	*U*		2.50E-3	0.100	*"*				*50-150*		
Surrogate: Carbon tetrachloride	*U*		0.0250	0.100	*"*				*70-130*		

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Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

LCS (B18C001-BS1) **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	**0.571**		0.100	0.100	ppbv	0.5310		108%	70-130		
Propene	**0.523**		0.100	0.100	"	0.5370		97%	70-130		
Chloromethane	**0.558**		0.100	0.100	"	0.5490		102%	70-130		
Methanol	**0.492**	B	0.100	0.100	"	0.5170		95%	60-140		
Vinyl chloride	**0.535**		0.100	0.100	"	0.5370		100%	70-130		
Isobutene	**0.533**		0.100	0.100	"	0.5300		101%	70-130		
1,3-butadiene	**0.528**		2.50E-3	0.100	"	0.5450		97%	70-130		
Acetaldehyde	**Rejected**		0.100	0.100	"	0.5390		70%	60-140		
Bromomethane	**0.553**		0.100	0.100	"	0.5540		100%	70-130		
Chloroethane	**0.544**		0.100	0.100	"	0.5510		99%	70-130		
Ethanol	**0.446**		0.100	0.100	"	0.5060		88%	60-140		
Acrolein	**0.498**		0.100	0.100	"	0.5180		96%	60-140		
Acetonitrile	**0.486**		0.100	0.100	"	0.5050		96%	60-140		
Isopropyl alcohol	**0.478**	B	0.100	0.100	"	0.5000		96%	60-140		
Propanal	**0.491**		0.100	0.100	"	0.5220		94%	60-140		
Acetone	**0.514**		0.100	0.100	"	0.5410		95%	60-140		
Pentane	**0.532**		0.100	0.100	"	0.5600		95%	70-130		
Isoprene	**0.515**		0.100	0.100	"	0.5420		95%	70-130		
1,1-Dichloroethene	**0.509**		0.100	0.100	"	0.5220		97%	70-130		
Methyl iodide	**0.501**		0.100	0.100	"	0.5340		94%	70-130		
Acrylonitrile	**0.476**		0.100	0.100	"	0.5010		95%	60-140		
Methylene chloride	**0.483**		0.100	0.100	"	0.5000		97%	70-130		
Carbon disulfide	**0.511**		0.100	0.100	"	0.4990		102%	60-140		
1-Propanol	**0.460**		0.100	0.100	"	0.4790		96%	60-140		
Cyclopentane	**0.444**		0.100	0.100	"	0.4940		90%	70-130		
Methyl tert-butyl ether	**0.463**		0.100	0.100	"	0.5040		92%	60-140		
Methacrolein	**0.438**		0.100	0.100	"	0.4790		91%	60-140		
1,1-Dichloroethane	**0.477**		0.100	0.100	"	0.4950		96%	70-130		
Vinyl acetate	**0.457**		0.100	0.100	"	0.4950		92%	60-140		
Methyl vinyl ketone	**0.451**		0.100	0.100	"	0.4920		92%	60-140		

Environmental Protection Agency Region 5
Chicago Regional Laboratory
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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

LCS (B18C001-BS1) **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Butanal	**0.445**		0.100	0.100	ppbv	0.4790		93%	60-140		
Hexane	**0.464**		0.100	0.100	"	0.4970		93%	70-130		
2-Butanone	**0.486**		0.100	0.100	"	0.5230		93%	60-140		
cis-1,2-Dichloroethene	**0.466**		0.100	0.100	"	0.4960		94%	70-130		
trans-1,2-Dichloroethene	**0.484**		0.100	0.100	"	0.5060		96%	70-130		
Chloroform	**0.484**		2.50E-3	0.0500	"	0.5110		95%	70-130		
1,2-Dichloroethane	**0.477**		2.50E-3	0.100	"	0.4950		96%	70-130		
1-Butanol	**0.467**		0.100	0.100	"	0.5030		93%	60-140		
Cyclohexane	**0.443**		0.100	0.100	"	0.5050		88%	70-130		
Benzene	**0.470**		0.100	0.100	"	0.5040		93%	70-130		
2-Pentanone	**0.456**		0.100	0.100	"	0.5020		91%	60-140		
3-Pentanone	**0.457**		0.100	0.100	"	0.5070		90%	60-140		
Pentanal	**0.462**		0.100	0.100	"	0.4940		93%	60-140		
1,2-Dichloropropane	**0.479**		0.100	0.100	"	0.5010		96%	70-130		
Trichloroethene	**0.397**		2.50E-3	0.100	"	0.5010		79%	70-130		
Bromodichloromethane	**0.508**		0.100	0.100	"	0.5240		97%	70-130		
1,4-Dioxane	**0.493**		0.100	0.100	"	0.5300		93%	60-140		
cis-1,3-Dichloropropene	**0.471**		0.100	0.100	"	0.5100		92%	70-130		
4-Methyl-2-pentanone	**0.459**		0.100	0.100	"	0.5020		91%	60-140		
trans-1,3-Dichloropropene	**0.478**		0.100	0.100	"	0.5130		93%	70-130		
1,1,2-Trichloroethane	**0.486**		0.100	0.100	"	0.5020		97%	70-130		
Dibromochloromethane	**0.531**		0.100	0.100	"	0.5060		105%	70-130		
Toluene	**0.447**		0.100	0.100	"	0.4920		91%	70-130		
3-Hexanone	**0.469**		0.100	0.100	"	0.5050		93%	60-140		
2-Hexanone	**0.424**		0.100	0.100	"	0.4950		86%	60-140		
Hexanal	**0.447**		0.100	0.100	"	0.5010		89%	60-140		
1,2-Dibromoethane (EDB)	**0.481**		0.100	0.100	"	0.5080		95%	70-130		
Tetrachloroethene	**0.467**		0.100	0.100	"	0.4990		94%	70-130		
Chlorobenzene	**0.455**		0.100	0.100	"	0.5070		90%	70-130		
Ethylbenzene	**0.427**		0.100	0.100	"	0.4890		87%	70-130		

Environmental Protection Agency Region 5
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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

LCS (B18C001-BS1) — **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
m+p-Xylene	**0.909**		0.100	0.100	ppbv	0.9850		92%	70-130		
Bromoform	**0.505**		0.100	0.100	"	0.5240		96%	70-130		
Styrene	**0.476**		0.100	0.100	"	0.5020		95%	70-130		
1,1,2,2-Tetrachloroethane	**0.477**		0.100	0.100	"	0.5070		94%	70-130		
o-Xylene	**0.429**		0.100	0.100	"	0.4860		88%	70-130		
1,3,5-Trimethylbenzene	**0.444**		0.100	0.100	"	0.5030		88%	70-130		
1,2,4-Trimethylbenzene	**0.452**		0.100	0.100	"	0.5020		90%	70-130		
1,3-Dichlorobenzene	**0.454**		0.100	0.100	"	0.4980		91%	70-130		
Benzyl chloride	**0.466**		0.100	0.100	"	0.5150		91%	70-130		
1,4-Dichlorobenzene	**0.472**		0.100	0.100	"	0.5260		90%	70-130		
1,2,3-Trimethylbenzene	**0.383**		0.100	0.100	"	0.4380		87%	70-130		
1,2-Dichlorobenzene	**0.456**		0.100	0.100	"	0.5140		89%	70-130		
1,2,4-Trichlorobenzene	**0.452**		0.100	0.100	"	0.5120		88%	70-130		
Naphthalene	**0.450**		0.100	0.100	"	0.5130		88%	70-130		
Surrogate: Dichlorodifluoromethane	*0.595*		0.100	0.100	*"*	*0.5210*		*114%*	*70-130*		
Surrogate: Dichlorotetrafluoroethane	*0.507*		2.50E-3	0.100	*"*	*0.5250*		*97%*	*70-130*		
Surrogate: Trichlorofluoromethane	*0.535*		2.50E-3	0.100	*"*	*0.5370*		*100%*	*70-130*		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon	*0.523*		2.50E-3	0.100	*"*	*0.5250*		*100%*	*70-130*		
Surrogate: 1,1,1-Trichloroethane	*0.484*		2.50E-3	0.100	*"*	*0.5080*		*95%*	*70-130*		
Surrogate: Carbon tetrachloride	*0.485*		0.0250	0.100	*"*	*0.5000*		*97%*	*70-130*		

LCS Dup (B18C001-BSD1) — **Prepared: Mar-05-18 Analyzed: Mar-06-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	**0.565**		0.100	0.100	ppbv	0.5310		106%	70-130	1	30
Propene	**0.476**		0.100	0.100	"	0.5370		89%	70-130	9	30
Chloromethane	**0.520**		0.100	0.100	"	0.5490		95%	70-130	7	30
Methanol	**0.334**	B	0.100	0.100	"	0.5170		65%	60-140	38	40
Vinyl chloride	**0.486**		0.100	0.100	"	0.5370		90%	70-130	10	30
Isobutene	**0.430**		0.100	0.100	"	0.5300		81%	70-130	21	30

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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

LCS Dup (B18C001-BSD1) **Prepared: Mar-05-18 Analyzed: Mar-06-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3-butadiene	**0.495**		2.50E-3	0.100	ppbv	0.5450		91%	70-130	6	30
Acetaldehyde	**Rejected**		0.100	0.100	"	0.5390		60%	60-140	15	40
Bromomethane	**0.533**		0.100	0.100	"	0.5540		96%	70-130	4	30
Chloroethane	**0.527**		0.100	0.100	"	0.5510		96%	70-130	3	30
Ethanol	**0.482**		0.100	0.100	"	0.5060		95%	60-140	8	40
Acrolein	**0.500**		0.100	0.100	"	0.5180		96%	60-140	0.4	40
Acetonitrile	**0.448**		0.100	0.100	"	0.5050		89%	60-140	8	40
Isopropyl alcohol	**0.444**	B	0.100	0.100	"	0.5000		89%	60-140	7	40
Propanal	**0.440**		0.100	0.100	"	0.5220		84%	60-140	11	40
Acetone	**0.458**		0.100	0.100	"	0.5410		85%	60-140	11	40
Pentane	**0.525**		0.100	0.100	"	0.5600		94%	70-130	1	30
Isoprene	**0.487**		0.100	0.100	"	0.5420		90%	70-130	6	30
1,1-Dichloroethene	**0.459**		0.100	0.100	"	0.5220		88%	70-130	10	30
Methyl iodide	**0.483**		0.100	0.100	"	0.5340		90%	70-130	4	30
Acrylonitrile	**0.430**		0.100	0.100	"	0.5010		86%	60-140	10	40
Methylene chloride	**0.442**		0.100	0.100	"	0.5000		88%	70-130	9	30
Carbon disulfide	**0.477**		0.100	0.100	"	0.4990		96%	60-140	7	40
1-Propanol	**0.427**		0.100	0.100	"	0.4790		89%	60-140	7	40
Cyclopentane	**0.441**		0.100	0.100	"	0.4940		89%	70-130	0.8	30
Methyl tert-butyl ether	**0.446**		0.100	0.100	"	0.5040		89%	60-140	4	40
Methacrolein	**0.410**		0.100	0.100	"	0.4790		86%	60-140	7	40
1,1-Dichloroethane	**0.439**		0.100	0.100	"	0.4950		89%	70-130	8	30
Vinyl acetate	**0.413**		0.100	0.100	"	0.4950		83%	60-140	10	40
Methyl vinyl ketone	**0.415**		0.100	0.100	"	0.4920		84%	60-140	8	40
Butanal	**0.414**		0.100	0.100	"	0.4790		86%	60-140	7	40
Hexane	**0.440**		0.100	0.100	"	0.4970		89%	70-130	5	30
2-Butanone	**0.462**		0.100	0.100	"	0.5230		88%	60-140	5	40
cis-1,2-Dichloroethene	**0.430**		0.100	0.100	"	0.4960		87%	70-130	8	30
trans-1,2-Dichloroethene	**0.446**		0.100	0.100	"	0.5060		88%	70-130	8	30
Chloroform	**0.444**		2.50E-3	0.0500	"	0.5110		87%	70-130	9	30

Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

LCS Dup (B18C001-BSD1) **Prepared: Mar-05-18 Analyzed: Mar-06-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2-Dichloroethane	**0.436**		2.50E-3	0.100	ppbv	0.4950		88%	70-130	9	30
1-Butanol	**0.471**		0.100	0.100	"	0.5030		94%	60-140	0.9	40
Cyclohexane	**0.460**		0.100	0.100	"	0.5050		91%	70-130	4	30
Benzene	**0.442**		0.100	0.100	"	0.5040		88%	70-130	6	30
2-Pentanone	**0.420**		0.100	0.100	"	0.5020		84%	60-140	8	40
Pentanal	**0.424**		0.100	0.100	"	0.4940		86%	60-140	8	40
3-Pentanone	**0.420**		0.100	0.100	"	0.5070		83%	60-140	9	40
1,2-Dichloropropane	**0.446**		0.100	0.100	"	0.5010		89%	70-130	7	30
Trichloroethene	**0.376**		2.50E-3	0.100	"	0.5010		75%	70-130	5	30
Bromodichloromethane	**0.463**		0.100	0.100	"	0.5240		88%	70-130	9	30
1,4-Dioxane	**0.476**		0.100	0.100	"	0.5300		90%	60-140	4	40
cis-1,3-Dichloropropene	**0.437**		0.100	0.100	"	0.5100		86%	70-130	8	30
4-Methyl-2-pentanone	**0.447**		0.100	0.100	"	0.5020		89%	60-140	3	40
trans-1,3-Dichloropropene	**0.457**		0.100	0.100	"	0.5130		89%	70-130	4	30
1,1,2-Trichloroethane	**0.451**		0.100	0.100	"	0.5020		90%	70-130	7	30
Dibromochloromethane	**0.490**		0.100	0.100	"	0.5060		97%	70-130	8	30
Toluene	**0.429**		0.100	0.100	"	0.4920		87%	70-130	4	30
3-Hexanone	**0.436**		0.100	0.100	"	0.5050		86%	60-140	7	40
2-Hexanone	**0.491**		0.100	0.100	"	0.4950		99%	60-140	15	40
Hexanal	**0.444**		0.100	0.100	"	0.5010		89%	60-140	0.7	40
1,2-Dibromoethane (EDB)	**0.447**		0.100	0.100	"	0.5080		88%	70-130	7	30
Tetrachloroethene	**0.445**		0.100	0.100	"	0.4990		89%	70-130	5	30
Chlorobenzene	**0.437**		0.100	0.100	"	0.5070		86%	70-130	4	30
Ethylbenzene	**0.432**		0.100	0.100	"	0.4890		88%	70-130	1	30
m+p-Xylene	**0.931**		0.100	0.100	"	0.9850		94%	70-130	2	30
Bromoform	**0.476**		0.100	0.100	"	0.5240		91%	70-130	6	30
Styrene	**0.481**		0.100	0.100	"	0.5020		96%	70-130	1	30
1,1,2,2-Tetrachloroethane	**0.441**		0.100	0.100	"	0.5070		87%	70-130	8	30
o-Xylene	**0.426**		0.100	0.100	"	0.4860		88%	70-130	0.8	30
1,3,5-Trimethylbenzene	**0.445**		0.100	0.100	"	0.5030		89%	70-130	0.3	30

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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

LCS Dup (B18C001-BSD1) **Prepared: Mar-05-18 Analyzed: Mar-06-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	**0.456**		0.100	0.100	ppbv	0.5020		91%	70-130	0.8	30
1,3-Dichlorobenzene	**0.438**		0.100	0.100	"	0.4980		88%	70-130	4	30
Benzyl chloride	**0.474**		0.100	0.100	"	0.5150		92%	70-130	2	30
1,4-Dichlorobenzene	**0.452**		0.100	0.100	"	0.5260		86%	70-130	4	30
1,2,3-Trimethylbenzene	**0.383**		0.100	0.100	"	0.4380		87%	70-130	0.08	30
1,2-Dichlorobenzene	**0.434**		0.100	0.100	"	0.5140		84%	70-130	5	30
1,2,4-Trichlorobenzene	**0.430**		0.100	0.100	"	0.5120		84%	70-130	5	30
Naphthalene	**0.457**		0.100	0.100	"	0.5130		89%	70-130	1	30
Surrogate: Dichlorodifluoromethane	*0.578*		0.100	0.100	*"*	*0.5210*		*111%*	*70-130*		
Surrogate: Dichlorotetrafluoroethane	*0.493*		2.50E-3	0.100	*"*	*0.5250*		*94%*	*70-130*		
Surrogate: Trichlorofluoromethane	*0.520*		2.50E-3	0.100	*"*	*0.5370*		*97%*	*70-130*		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon	*0.499*		2.50E-3	0.100	*"*	*0.5250*		*95%*	*70-130*		
Surrogate: 1,1,1-Trichloroethane	*0.453*		2.50E-3	0.100	*"*	*0.5080*		*89%*	*70-130*		
Surrogate: Carbon tetrachloride	*0.445*		0.0250	0.100	*"*	*0.5000*		*89%*	*70-130*		

Duplicate (B18C001-DUP1) **Source: 1803001-01** **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chlorodifluoromethane (HCFC-22) (R-22)	**0.255**		0.100	0.100	ppbv		0.255			0.1	30
Propene + propane	**0.643**		0.100	0.100	"		0.651			1	30
Chloromethane	**0.546**		0.100	0.100	"		0.550			0.6	30
Methanol	**6.17**	(E), B, J	0.100	0.100	"		6.25			1	30
Vinyl chloride	**U**		0.100	0.100	"		U				30
Isobutene	**0.217**		0.100	0.100	"		0.219			1	30
1,3-butadiene	**U**		2.50E-3	0.100	"		5.30E-3				30
Acetaldehyde	**Rejected**		0.100	0.100	"		Rejected			26	30
Bromomethane	**U**		0.100	0.100	"		U				30
Chloroethane	**U**		0.100	0.100	"		U				30
Ethanol	**2.41**	(E), J	0.100	0.100	"		2.54			5	30
Acrolein	**U**	MI	0.100	0.100	"		0.101				30

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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

Duplicate (B18C001-DUP1) **Source: 1803001-01** **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acetonitrile	U		0.100	0.100	ppbv		U				30
Isopropyl alcohol	**0.173**	B	0.100	0.100	"		0.165			4	30
Propanal	**0.162**	B	0.100	0.100	"		0.168			4	30
Acetone	**1.49**	B	0.100	0.100	"		1.48			0.6	30
Pentane	**0.220**		0.100	0.100	"		0.214			2	30
Isoprene	U		0.100	0.100	"		U				30
1,1-Dichloroethene	U		0.100	0.100	"		U				30
Methyl iodide	U		0.100	0.100	"		U				30
Acrylonitrile	U	MI	0.100	0.100	"		U				30
Methylene chloride	**0.133**		0.100	0.100	"		0.132			1	30
Carbon disulfide	U		0.100	0.100	"		U				30
1-Propanol	U		0.100	0.100	"		U				30
Cyclopentane	U		0.100	0.100	"		U				30
Methyl tert-butyl ether	U		0.100	0.100	"		U				30
Methacrolein	U		0.100	0.100	"		U				30
1,1-Dichloroethane	U		0.100	0.100	"		U				30
Vinyl acetate	U		0.100	0.100	"		U				30
Methyl vinyl ketone	U		0.100	0.100	"		U				30
Butanal	**0.141**		0.100	0.100	"		0.145			2	30
Hexane	U		0.100	0.100	"		U				30
2-Butanone	**0.254**		0.100	0.100	"		0.256			0.8	30
cis-1,2-Dichloroethene	U		0.100	0.100	"		U				30
trans-1,2-Dichloroethene	U		0.100	0.100	"		U				30
Chloroform	**0.0200**	J	2.50E-3	0.0500	"		0.0201			0.6	30
1,2-Dichloroethane	**0.0192**	J	2.50E-3	0.100	"		0.0197			2	30
1-Butanol	U		0.100	0.100	"		U				30
Cyclohexane	U		0.100	0.100	"		U				30
Benzene	**0.161**		0.100	0.100	"		0.164			2	30
2-Pentanone	U		0.100	0.100	"		U				30
3-Pentanone	U		0.100	0.100	"		U				30

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	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

Duplicate (B18C001-DUP1) **Source: 1803001-01** **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Pentanal	U		0.100	0.100	ppbv		U				30
1,2-Dichloropropane	U		0.100	0.100	"		U				30
Trichloroethene	**5.51E-3**	J	2.50E-3	0.100	"		6.29E-3			13	30
Bromodichloromethane	U		0.100	0.100	"		U				30
1,4-Dioxane	U		0.100	0.100	"		U				30
cis-1,3-Dichloropropene	U		0.100	0.100	"		U				30
4-Methyl-2-pentanone	U		0.100	0.100	"		U				30
trans-1,3-Dichloropropene	U		0.100	0.100	"		U				30
1,1,2-Trichloroethane	U		0.100	0.100	"		U				30
Dibromochloromethane	U		0.100	0.100	"		U				30
Toluene	**0.173**		0.100	0.100	"		0.177			3	30
3-Hexanone	U		0.100	0.100	"		U				30
2-Hexanone	U		0.100	0.100	"		U				30
Hexanal	U		0.100	0.100	"		U				30
1,2-Dibromoethane (EDB)	U		0.100	0.100	"		U				30
Tetrachloroethene	U		0.100	0.100	"		U				30
Chlorobenzene	U		0.100	0.100	"		U				30
Ethylbenzene	U		0.100	0.100	"		U				30
m+p-Xylene	U		0.100	0.100	"		U				30
Bromoform	U		0.100	0.100	"		U				30
Styrene	U		0.100	0.100	"		U				30
1,1,2,2-Tetrachloroethane	U		0.100	0.100	"		U				30
o-Xylene	U		0.100	0.100	"		U				30
1,3,5-Trimethylbenzene	U		0.100	0.100	"		U				30
1,2,4-Trimethylbenzene	U		0.100	0.100	"		U				30
1,3-Dichlorobenzene	U		0.100	0.100	"		U				30
Benzyl chloride	U		0.100	0.100	"		U				30
1,4-Dichlorobenzene	U		0.100	0.100	"		U				30
1,2,3-Trimethylbenzene	U		0.100	0.100	"		U				30
1,2-Dichlorobenzene	U		0.100	0.100	"		U				30

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Air Division, US EPA Region 5	Project: Mid America Steel Drum, Inc.	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Alexandra Letuchy	Apr-13-18 14:04

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

Batch B18C001 - ColdTrap Dehydration

Duplicate (B18C001-DUP1) **Source: 1803001-01** **Prepared & Analyzed: Mar-05-18**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	U		0.100	0.100	ppbv		U				30
Naphthalene	U		0.100	0.100	"		U				30
Surrogate: Dichlorodifluoromethane	*0.510*		0.100	0.100	"	*0.5100*		*100%*	*70-130*		
Surrogate: Dichlorotetrafluoroethane	*0.0176*		2.50E-3	0.100	"	*2.000E-2*		*88%*	*60-140*		
Surrogate: Trichlorofluoromethane	*0.234*		2.50E-3	0.100	"	*0.2350*		*100%*	*70-130*		
Surrogate: 1,1,2-trichloro-1,2,2-trifluoroethane (Freon	*0.0847*		2.50E-3	0.100	"	*7.200E-2*		*118%*	*70-130*		
Surrogate: 1,1,1-Trichloroethane	*2.75E-3*		2.50E-3	0.100	"	*4.000E-3*		*69%*	*50-150*		
Surrogate: Carbon tetrachloride	*0.0824*		0.0250	0.100	"	*8.300E-2*		*99%*	*70-130*		

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Notes and Definitions

R	Rejected
MI	Matrix interference
J	The identification of the analyte is acceptable; the reported value is an estimate.
B	Analyte concentration is < 5x that in the associated method blank(s); this concentration may be a high-bias estimate.
(E)	This analyte exceeded the calibration range
U	Not Detected
NR	Not Reported
Q	QC limit Exceeded