



Source Test Report

US Steel Clairton Works
400 State Street
Clairton City, Allegheny County PA 15025

Source Tested: Cooling Tower
Test Date: December 27-28, 2022
Report Submittal Date: March 7, 2023

Project No. AST-2022-3353

Prepared By
Alliance Technical Group, LLC
20 Parkway View Drive
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Regulatory Information

PFID 737439
Regulatory Citation U.S. EPA Risk & Technology Review (RTR)

Source Information

<i>Source Name</i>	<i>Target Parameters</i>
East Side Cooling Tower	Speciated VOC, THC
West Side Cooling Tower	Speciated VOC, THC

Contact Information

Test Location
US Steel Clairton Works
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Alliance Technical Group, LLC (Alliance) has completed the source testing as described in this report. Results apply only to the source(s) tested and operating condition(s) for the specific test date(s) and time(s) identified within this report. All results are intended to be considered in their entirety, and Alliance is not responsible for use of less than the complete test report without written consent. This report shall not be reproduced in full or in part without written approval from the customer.

To the best of my knowledge and abilities, all information, facts and test data are correct. Data presented in this report has been checked for completeness and is accurate, error-free and legible. Onsite testing was conducted in accordance with approved internal Standard Operating Procedures. Any deviations or problems are detailed in the relevant sections on the test report.

This report is only considered valid once an authorized representative of Alliance has signed in the space provided below; any other version is considered draft. This document was prepared in portable document format (.pdf) and contains pages as identified in the bottom footer of this document.



Adam Robinson, QSTI
Technical Director/Project Manager
Alliance Technical Group, LLC

3/7/2023

Date



Kenji Kinoshita, QSTI
Field Team Leader
Alliance Technical Group, LLC

3/7/2023

Date

SOURCE OWNER/OPERATOR REPRESENTATIVE CERTIFICATION

The below certification is for the compliance stack test performed on the East and West Side Cooling Towers located at the US Steel Clairton Works facility in Clairton City, Allegheny County, Pennsylvania on December 27-28, 2022.

I certify that “to the best of my knowledge” this source test report has been checked for completeness, and that the results presented herein are accurate, error-free, legible, and representative of the actual emissions measured during testing.

Michael Dzurinko
US Steel Clairton Works

Date

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Introduction

1.0 Introduction

Alliance Technical Group, LLC (Alliance) was retained by US Steel Clairton Works (US Steel) to conduct ICR testing at the Clairton City, Pennsylvania facility. Portions of the facility are required to satisfy the EPA's Coke Ovens Section 114 Request Risk and Technology Review: 40 CFR 63, Subpart CCCCC & L ICR. Testing was conducted to determine the concentrations of speciated volatile organic compounds (VOC) from the East and West Side Cooling Towers.

1.1 Project Team

Personnel involved in this project are identified in the following table.

Table 1-1: Project Team

Facility Personnel	Mike Dzurinko
Alliance Personnel	Kenji Kinoshita Dillan Jeffrey

1.2 Quality Assurance Summary

Sampling and analytical procedures during this test program were performed in accordance with the Coke Ovens Section 114 Request Risk and Technology Review (RTR): 40 CFR 63, Subpart CCCCC & L letter.

All calibrations, QA/QC checks, and leak checks conducted during this test program were within the acceptable limits established by the U.S. EPA test methods. All data supporting these findings can be found in the appendices of the report.

1.3 Technical Discussion

No technical difficulties or protocol deviations were encountered during this test program.

Summary of Results

2.0 Summary of Results

Alliance conducted RTR testing at the US Steel facility in Clairton City, Pennsylvania on December 27-28, 2022. Testing consisted of determining the emission rates of VOCs from the East and West Side Cooling Towers.

Tables 2-1 and 2-3 provide summaries of the emission testing results. This table also provides a summary of the process operating and control system data collected during testing. Any difference between the summary results listed in the following tables and the detailed results contained in appendices is due to rounding for presentation.

Table 2-1: Summary of Results – Total Hydrocarbon Data

Run Number	Date	Start Time	End Time	Concentration, ppmv
East Side Cooling Tower Inlet				
Run 1	12/27/22	10:00	11:00	0.82
Run 2	12/27/22	11:00	12:00	1.06
Run 3	12/27/22	12:00	13:00	2.41
Run 4	12/27/22	13:00	14:00	2.31
Run 5	12/27/22	14:00	15:00	2.01
Run 6	12/27/22	15:00	16:00	2.24
Run 7	12/27/22	16:00	17:00	1.53
West Side Cooling Tower Inlet				
Run 1	12/28/22	8:00	9:00	0.26
Run 2	12/28/22	9:00	10:00	0.24
Run 3	12/28/22	10:00	11:00	0.00
Run 4	12/28/22	11:00	12:00	0.010
Run 5	12/28/22	12:00	13:00	0.020
Run 6	12/28/22	13:00	14:00	0.00
Run 7	12/28/22	14:00	15:00	0.020

Table 2-2: Summary of Results – East Side Cooling Tower Inlet, Speciated VOC

Run Number	Run 1	Run 2	Run 3
Date	12/27/22	12/27/22	12/27/22
Process Water Flow, gpm	17,201	17,201	17,201
CWT Water Temperature, °C	16.11	16.11	16.11
Ambient Air Temp, °F	26	26	26
Barometric Pressure, in. Hg	29.56	29.56	29.56
Concentration	ppbv	ppbv	ppbv
Propane (propylene)	0.127	0.100	0.128
Dichlorodifluoromethane (Freon 12)	< 0.0350	< 0.0350	< 0.0350
1,2-Dichlorotetrafluoroethane (Freon 114)	< 0.0350	< 0.0350	< 0.0350
Chloromethane (methyl chloride)	0.192	0.408	0.211
Chloroethene (vinyl chloride)	< 0.0350	1.98	< 0.0350
1, 3-Butadiene (butadiene)	< 0.0350	< 0.0350	< 0.0350
Bromomethane (methyl bromide)	0.0611	0.0575	0.0392
Chloroethane (ethyl chloride)	< 0.0350	< 0.0350	< 0.0350
Bromoethene (Vinyl bromide)	< 0.0350	< 0.0350	< 0.0350
Trichlorofluoromethane (Freon 11)	0.0358	< 0.0350	0.0885
Ethanol	6.02	8.25	8.53
Acrolein	0.443	0.462	0.502
1,1,2-Trichlorotrifluoroethane (Freon 113)	< 0.0350	< 0.0350	< 0.0350
1,1-Dichloroethene (vinylidene chloride)	< 0.0350	< 0.0350	< 0.0350
Carbon Disulfide (methanedithione)	0.222	0.171	0.243
Isopropyl alcohol	0.277	0.323	0.556
Allyl chloride (3-chloropropene)	< 0.0350	< 0.0350	< 0.0350
Acetonitrile	1.65	1.55	1.43
Dichloromethane (methylene chloride)	0.866	0.961	1.01
trans-1,2-Dichloroethene	< 0.0350	< 0.0350	< 0.0350
Methyl tert-butyl ether	< 0.0350	< 0.0350	< 0.0350
Acrylonitrile	0.0678	0.0455	0.0501
Hexane	0.766	0.789	0.782
1,1-Dichloroethane	< 0.0350	< 0.0350	< 0.0350
Vinyl acetate	< 0.0350	< 0.0350	< 0.0350
cis-1,2-Dichloroethene	< 0.0350	< 0.0350	< 0.0350
Methyl ethyl ketone (2-Butanone)	0.231	0.206	0.272
Ethyl acetate	0.136	0.183	0.190
Chloroform	1.88	1.51	1.72
Tetrahydrofuran	0.306	0.0816	0.281
1,1,1-Trichloroethane	< 0.0350	< 0.0350	< 0.0350
Cyclohexane	0.0437	< 0.0350	0.0453
Carbon tetrachloride	< 0.0350	< 0.0350	< 0.0350
Benzene	24.8	16.0	19.6
2,2,4-trimethylpentane	< 0.0350	< 0.0350	< 0.0350
1,2-Dichloroethane	< 0.0350	< 0.0350	< 0.0350

Table 2-2: Summary of Results Continued – East Side Cooling Tower Inlet, Speciated VOC

Run Number	Run 1	Run 2	Run 3
Date	12/27/22	12/27/22	12/27/22
Concentration	ppbv	ppbv	ppbv
Heptane	< 0.0350	< 0.0350	< 0.0350
Trichloroethene	1.97	3.28	3.60
1,2-Dichloropropane	< 0.0350	< 0.0350	< 0.0350
Methyl methacrylate	0.0542	< 0.0350	< 0.0350
1,4-Dioxane	0.0354	< 0.0350	< 0.0350
Bromodichloromethane	3.55	3.02	3.16
cis-1,3-Dichloropropene	< 0.0350	< 0.0350	< 0.0350
Methyl isobutyl ketone	0.0511	0.0430	0.0439
Toluene	6.59	6.26	5.56
trans-1,3-Dichloropropene	< 0.0350	< 0.0350	< 0.0350
1,1,2-Trichloroethane	< 0.0350	< 0.0350	< 0.0350
Tetrachloroethene	0.0379	< 0.0350	0.0496
2-Hexanone (Methyl butyl ketone)	< 0.0350	< 0.0350	< 0.0350
Dibromochloromethane	5.52	4.95	4.92
1,2-Dibromoethane	< 0.0350	< 0.0350	< 0.0350
Chlorobenzene	< 0.0350	< 0.0350	< 0.0350
Ethylbenzene	0.136	0.0672	0.101
1,1,1,2-Tetrachloroethane	< 0.0350	< 0.0350	< 0.0350
m-/p-Xylenes	0.578	0.405	0.398
o-Xylene	0.191	0.130	0.138
Styrene	0.0752	0.0639	0.0650
Bromoform	3.26	3.35	3.01
1,1,2,2-Tetrachloroethane	< 0.0350	< 0.0350	< 0.0350
4-Ethyltoluene	< 0.0350	< 0.0350	< 0.0350
2-Chlorotoluene	< 0.0350	< 0.0350	< 0.0350
1,3,5-Trimethylbenzene	0.0360	< 0.0350	< 0.0350
1,2,4-Trimethylbenzene	0.106	0.0931	0.0730
1,3-Dichlorobenzene	< 0.0350	< 0.0350	< 0.0350
1,4-Dichlorobenzene	< 0.0350	< 0.0350	< 0.0350
Benzyl chloride	< 0.0350	< 0.0350	< 0.0350
1,2-Dichlorobenzene	< 0.0350	< 0.0350	< 0.0350
1,2,4-Trichlorobenzene	< 0.0350	< 0.0350	< 0.0350
Hexachlorobutadiene	< 0.0350	< 0.0350	< 0.0350
Naphthalene	0.0721	0.122	0.0595
1-Bromopropane	< 0.0350	< 0.0350	< 0.0350
1-Octene	< 0.0350	< 0.0350	< 0.0350
n-Octane	< 0.0350	< 0.0350	< 0.0350
Isopropylbenzene	< 0.0350	< 0.0350	< 0.0350
n-Propylbenzene	< 0.0350	< 0.0350	< 0.0350
Acetone	51.5	64.0	72.0

* When laboratory results were reported below detection limit, the reportable detection limit was reported.

Table 2-3: Summary of Results – West Side Cooling Tower Inlet, Speciated VOC

Run Number	Run 1	Run 2	Run 3
Date	12/28/22	12/28/22	12/28/22
Process Water Flow, gpm	38,013	38,013	38,013
CWT Water Temperature, °C	16.67	16.67	16.67
Ambient Air Temp, °F	28	33	36
Barometric Pressure, in. Hg	29.46	29.46	29.46
Concentration	ppbv	ppbv	ppbv
Propane (propylene)	0.565	0.239	0.263
Dichlorodifluoromethane (Freon 12)	0.437	< 0.0350	< 0.0350
1,2-Dichlorotetrafluoroethane (Freon 114)	0.0399	< 0.0350	< 0.0350
Chloromethane (methyl chloride)	0.574	0.550	0.546
Chloroethene (vinyl chloride)	< 0.0350	1.79	1.83
1, 3-Butadiene (butadiene)	0.101	0.0388	0.0362
Bromomethane (methyl bromide)	0.0985	0.133	0.155
Chloroethane (ethyl chloride)	0.0450	< 0.0350	< 0.0350
Bromoethene (Vinyl bromide)	< 0.0350	< 0.0350	< 0.0350
Trichlorofluoromethane (Freon 11)	1.25	0.0354	0.0482
Ethanol	13.6	9.23	7.43
Acrolein	0.973	0.472	0.440
1,1,2-Trichlorotrifluoroethane (Freon 113)	0.0387	< 0.0350	< 0.0350
1,1-Dichloroethene (vinylidene chloride)	< 0.0350	< 0.0350	< 0.0350
Carbon Disulfide (methanedithione)	1.11	0.346	0.344
Isopropyl alcohol	2.07	0.363	0.272
Allyl chloride (3-chloropropene)	0.0520	< 0.0350	< 0.0350
Acetonitrile	1.03	1.54	1.69
Dichloromethane (methylene chloride)	2.72	0.744	0.748
trans-1,2-Dichloroethene	< 0.0350	< 0.0350	< 0.0350
Methyl tert-butyl ether	< 0.0350	< 0.0350	< 0.0350
Acrylonitrile	0.0662	0.0650	0.0551
Hexane	0.878	0.379	0.521
1,1-Dichloroethane	< 0.0350	< 0.0350	< 0.0350
Vinyl acetate	< 0.0350	< 0.0350	< 0.0350
cis-1,2-Dichloroethene	< 0.0350	< 0.0350	< 0.0350
Methyl ethyl ketone (2-Butanone)	0.432	0.429	0.313
Ethyl acetate	0.424	0.100	< 0.0350
Chloroform	1.02	1.30	1.06
Tetrahydrofuran	0.754	< 0.0350	< 0.0350
1,1,1-Trichloroethane	< 0.0350	< 0.0350	< 0.0350
Cyclohexane	0.0798	< 0.0350	< 0.0350
Carbon tetrachloride	0.0416	< 0.0350	< 0.0350
Benzene	24.9	31.8	28.2
2,2,4-trimethylpentane	0.0443	< 0.0350	< 0.0350
1,2-Dichloroethane	< 0.0350	< 0.0350	< 0.0350

Table 2-3: Summary of Results Continued – West Side Cooling Tower Inlet, Speciated VOC

Run Number	Run 1	Run 2	Run 3
Date	12/28/22	12/28/22	12/28/22
Concentration	ppbv	ppbv	ppbv
Heptane	0.185	0.0425	0.0384
Trichloroethene	3.83	6.52	2.06
1,2-Dichloropropane	< 0.0350	< 0.0350	< 0.0350
Methyl methacrylate	< 0.0350	0.0361	0.0458
1,4-Dioxane	0.0634	0.0393	< 0.0350
Bromodichloromethane	2.06	3.46	2.98
cis-1,3-Dichloropropene	< 0.0350	< 0.0350	< 0.0350
Methyl isobutyl ketone	0.0875	< 0.0350	0.0446
Toluene	6.16	4.37	7.15
trans-1,3-Dichloropropene	< 0.0350	< 0.0350	< 0.0350
1,1,2-Trichloroethane	< 0.0350	< 0.0350	< 0.0350
Tetrachloroethene	0.0532	0.0808	< 0.0350
2-Hexanone (Methyl butyl ketone)	< 0.0350	< 0.0350	< 0.0350
Dibromochloromethane	3.45	6.63	6.24
1,2-Dibromoethane	< 0.0350	< 0.0350	< 0.0350
Chlorobenzene	< 0.0350	< 0.0350	< 0.0350
Ethylbenzene	0.151	0.0585	0.0880
1,1,1,2-Tetrachloroethane	< 0.0350	< 0.0350	< 0.0350
m-/p-Xylenes	0.674	0.510	0.617
o-Xylene	0.236	0.169	0.184
Styrene	0.113	0.171	0.160
Bromoform	2.29	5.01	4.97
1,1,2,2-Tetrachloroethane	< 0.0350	< 0.0350	< 0.0350
4-Ethyltoluene	0.0482	0.424	0.0391
2-Chlorotoluene	< 0.0350	< 0.0350	< 0.0350
1,3,5-Trimethylbenzene	0.0497	0.0451	0.0412
1,2,4-Trimethylbenzene	0.122	0.100	0.122
1,3-Dichlorobenzene	< 0.0350	< 0.0350	< 0.0350
1,4-Dichlorobenzene	< 0.0350	< 0.0350	< 0.0350
Benzyl chloride	< 0.0350	< 0.0350	< 0.0350
1,2-Dichlorobenzene	< 0.0350	< 0.0350	< 0.0350
1,2,4-Trichlorobenzene	< 0.0350	< 0.0350	< 0.0350
Hexachlorobutadiene	< 0.0350	< 0.0350	< 0.0350
Naphthalene	0.0471	0.298	0.221
1-Bromopropane	0.0766	< 0.0350	< 0.0350
1-Octene	< 0.0350	< 0.0350	< 0.0350
n-Octane	0.0424	< 0.0350	< 0.0350
Isopropylbenzene	< 0.0350	< 0.0350	< 0.0350
n-Propylbenzene	0.0450	0.0375	< 0.0350
Acetone	80.5	42.7	66.8

* When laboratory results were reported below detection limit, the reportable detection limit was reported.

Testing Methodology

3.0 Testing Methodology

The emission testing program was conducted in accordance with the test methods listed in Table 3-1. Method descriptions are provided below.

Table 3-1: Source Testing Methodology

Parameter	U.S. EPA Reference Test Methods	Notes/Remarks
Volatile Organic Compounds	TO-15	Integrated Bag / GC/MS Analysis

The test was conducted in accordance with all appropriate United States Environmental Protection Agency (U.S. EPA) Methodologies as well as all applicable Texas Commission on Environmental Quality (TCEQ) mandates as outlined in TCEQ Appendix P.

Sampling was performed in accordance with Appendix P of the TCEQ Sampling Procedures Manual, Revision 1, January 2003. A ten (10) minute stabilization time was completed prior to sampling in accordance with Section 6.1.3 of Appendix P. Samples were collected in leak-free Tedlar bags. Total hydrocarbons were measured using an flame ionization detector (FID) calibrated with propane.

3.1 U.S. EPA Reference Test Method TO-15 – Volatile Organic Compounds

The volatile organic compounds testing was conducted in accordance with EPA Method Toxic Organics-15 (TO-15). Following the completion of each test run, the bag sampling valve was closed and the sample was labeled for transport to the identified laboratory for analysis. The samples were analyzed by high resolution gas chromatography (GC) coupled to a mass spectrometer (MS) according to the analytical guidelines in EPA TO-15.

Appendix A

Location: US Steel - Clairton Mill Works

Source: East Side Cooling Tower Inlet

Project No.: AST-2022-3353

Run No.		1	2	3	4	5	6	7
Date		12/27/22	12/27/22	12/27/22	12/27/22	12/27/22	12/27/22	12/27/22
Start Time		10:00	11:00	12:00	13:00	14:00	15:00	16:00
Stop Time		11:00	12:00	13:00	14:00	15:00	16:00	17:00
Sampling Data								
Zero Air Background VOC, ppmvw	-	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Zero Water Background VOC, ppmvw		0.28	0.28	0.28	0.28	0.28	0.28	0.28
Column Water Flow, ccm		125	125	125	125	125	125	125
Column Air Flow, lpm		2.5	2.5	2.5	2.5	2.5	2.5	2.5
Average Column Temperature, °F	-	61	61	61	61	61	61	61
Input Data								
Process Water Flow, gpm	F	17,201	17,201	17,201	17,201	17,201	17,201	17,201
CWT Water Temperature, °C	T _w	16.11	16.11	16.11	16.11	16.11	16.11	16.11
Ambient Air Temp, °F	T _A	26	26	26	26	26	26	26
Barometric Pressure, in. Hg	P	29.56	29.56	29.56	29.56	29.56	29.56	29.56
Calculated Data								
THC (as C3H8) Concentration, ppmv		0.82	1.06	2.41	2.31	2.01	2.24	1.53

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 1
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Stabilization Time: 10 min.
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
10:00	125	2500	61	150	NA	0.82	Tedlar Bag
10:10	125	2500	61	150			
10:20	125	2500	61	150			
10:30	125	2500	61	150			
10:40	125	2500	61	150			
10:50	125	2500	61	150			
11:00	125	2500	61	150			
Average	125	2500	61.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 2
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
11:00	125	2500	61	150	NA	1.06	Tedlar Bag
11:10	125	2500	61	150			
11:20	125	2500	61	150			
11:30	125	2500	61	150			
11:40	125	2500	61	150			
11:50	125	2500	61	150			
12:00	125	2500	61	150			
Average	125	2500	61.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 3
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
12:00	125	2500	61	150	NA	2.41	Tedlar Bag
12:10	125	2500	61	150			
12:20	125	2500	61	150			
12:30	125	2500	61	150			
12:40	125	2500	61	150			
12:50	125	2500	61	150			
13:00	125	2500	61	150			
Average	125	2500	61.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 4
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
13:00	125	2500	61	150	NA	2.31	Tedlar Bag
13:10	125	2500	61	150			
13:20	125	2500	61	150			
13:30	125	2500	61	150			
13:40	125	2500	61	150			
13:50	125	2500	61	150			
14:00	125	2500	61	150			
Average	125	2500	61.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 5
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
14:00	125	2500	61	150	NA	2.01	Tedlar Bag
14:10	125	2500	61	150			
14:20	125	2500	61	150			
14:30	125	2500	61	150			
14:40	125	2500	61	150			
14:50	125	2500	61	150			
15:00	125	2500	61	150			
Average	125	2500	61.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 6
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
15:00	125	2500	61	150	NA	2.24	Tedlar Bag
15:10	125	2500	61	150			
15:20	125	2500	61	150			
15:30	125	2500	61	150			
15:40	125	2500	61	150			
15:50	125	2500	61	150			
16:00	125	2500	61	150			
Average	125	2500	61.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: East Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/27/2022
 Canister ID: NA
 Sample ID: Run 7
 Barometric Pressure: 29.56
 Ambient Temperature: 26
 Process Water Flow: 17201.3

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
16:00	125	2500	61	150	NA	1.53	Tedlar Bag
16:10	125	2500	61	150			
16:20	125	2500	61	150			
16:30	125	2500	61	150			
16:40	125	2500	61	150			
16:50	125	2500	61	150			
17:00	125	2500	61	150			
Average	125	2500	61.0	150			

Location: US Steel - Clairton Mill Works

Source: West Side Cooling Tower Inlet

Project No.: AST-2022-3353

Run No.		1	2	3	4	5	6	7
Date		12/28/22	12/28/22	12/28/22	12/28/22	12/28/22	12/28/22	12/28/22
Start Time		8:00	9:00	10:00	11:00	12:00	13:00	14:00
Stop Time		9:00	10:00	11:00	12:00	13:00	14:00	15:00
Sampling Data								
Zero Air Background VOC, ppmvw	-	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Zero Water Background VOC, ppmvw		0.28	0.28	0.28	0.28	0.28	0.28	0.28
Column Water Flow, ccm		125	125	125	125	125	125	125
Column Air Flow, lpm		2.5	2.5	2.5	2.5	2.5	2.5	2.5
Average Column Temperature, °F	-	62	62	62	62	62	62	62
Input Data								
Process Water Flow, gpm	F	38,013	38,013	38,013	38,013	38,013	38,013	38,013
CWT Water Temperature, °C	T _w	16.67	16.67	16.67	16.67	16.67	16.67	16.67
Ambient Air Temp, °F	T _A	28	33	36	40	44	47	47
Barometric Pressure, in. Hg	P	29.46	29.46	29.46	29.46	29.46	29.46	29.46
Calculated Data								
THC (as C3H8) Concentration, ppmv		0.26	0.24	0.00	0.010	0.020	0.00	0.020

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 1
 Barometric Pressure: 29.46
 Ambient Temperature: 28
 Stabilization Time: 10 min.
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
8:00	125	2500	62	150	NA	0.26	Tedlar Bag
8:10	125	2500	62	150			
8:20	125	2500	62	150			
8:30	125	2500	62	150			
8:40	125	2500	62	150			
8:50	125	2500	62	150			
9:00	125	2500	62	150			
Average	125	2500	62.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 2
 Barometric Pressure: 29.46
 Ambient Temperature: 33
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
9:00	125	2500	62	150	NA	0.24	Tedlar Bag
9:10	125	2500	62	150			
9:20	125	2500	62	150			
9:30	125	2500	62	150			
9:40	125	2500	62	150			
9:50	125	2500	62	150			
10:00	125	2500	62	150			
Average	125	2500	62.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 3
 Barometric Pressure: 29.46
 Ambient Temperature: 36
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
10:00	125	2500	62	150	NA	0	Tedlar Bag
10:10	125	2500	62	150			
10:20	125	2500	62	150			
10:30	125	2500	62	150			
10:40	125	2500	62	150			
10:50	125	2500	62	150			
11:00	125	2500	62	150			
Average	125	2500	62.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 4
 Barometric Pressure: 29.46
 Ambient Temperature: 40
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
11:00	125	2500	62	150	NA	0.01	Tedlar Bag
11:10	125	2500	62	150			
11:20	125	2500	62	150			
11:30	125	2500	62	150			
11:40	125	2500	62	150			
11:50	125	2500	62	150			
12:00	125	2500	62	150			
Average	125	2500	62.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 5
 Barometric Pressure: 29.46
 Ambient Temperature: 44
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
12:00	125	2500	62	150	NA	0.02	Tedlar Bag
12:10	125	2500	62	150			
12:20	125	2500	62	150			
12:30	125	2500	62	150			
12:40	125	2500	62	150			
12:50	125	2500	62	150			
13:00	125	2500	62	150			
Average	125	2500	62.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 6
 Barometric Pressure: 29.46
 Ambient Temperature: 47
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
13:00	125	2500	62	150	NA	0	Tedlar Bag
13:10	125	2500	62	150			
13:20	125	2500	62	150			
13:30	125	2500	62	150			
13:40	125	2500	62	150			
13:50	125	2500	62	150			
14:00	125	2500	62	150			
Average	125	2500	62.0	150			

Air Strippable VOCs in Water Canister Sampling Data Sheet

Regulated Entity: US Steel - Clairton Mill Works
 Project No: AST-2022-3353
 Unit Name: West Side Cooling Tower Inlet
 Process Description: Cooling Water
 Date/Time: 12/28/2022
 Canister ID: NA
 Sample ID: Run 7
 Barometric Pressure: 29.46
 Ambient Temperature: 47
 Process Water Flow: 38012.5

Time	Air Stripping Apparatus Data			Canister Flow Rate, if applicable (cc/min)	Canister Vacuum (mm Hg)	FID Reading, (ppmv, wet)	Comments
	Water (ml/min)	Air (ml/min)	Temp. (°F)				
14:00	125	2500	62	150	NA	0.02	Tedlar Bag
14:10	125	2500	62	150			
14:20	125	2500	62	150			
14:30	125	2500	62	150			
14:40	125	2500	62	150			
14:50	125	2500	62	150			
15:00	125	2500	62	150			
Average	125	2500	62.0	150			

DATA

Time	THC
10:40:23 AM	5.06
10:41:23 AM	4.67
10:42:23 AM	5
10:43:23 AM	5.05
10:44:23 AM	4.88
10:45:23 AM	4.31
10:46:23 AM	4.71
10:47:23 AM	5.5
10:48:23 AM	4.6
10:49:23 AM	5.39
10:50:23 AM	5.67
10:51:23 AM	4.48
10:52:23 AM	4.6
10:53:23 AM	2.53
10:54:23 AM	2.65
10:55:23 AM	3.64
10:56:23 AM	4.15
10:57:23 AM	4.22
10:58:23 AM	5.43
10:59:23 AM	4.86
11:00:23 AM	5.25
11:01:23 AM	5.13
11:02:23 AM	5.27
11:03:23 AM	5.65
11:04:23 AM	5.32
11:05:23 AM	4.87
11:06:23 AM	4.37
11:07:23 AM	4.88
11:08:23 AM	4.2
11:09:23 AM	4.33
11:10:23 AM	5.72
11:11:23 AM	5.1
11:12:23 AM	5.24
11:13:23 AM	4.74
11:14:23 AM	4.46
11:15:23 AM	5.04
11:16:23 AM	5.43
11:17:23 AM	6.15
11:18:23 AM	5.84
11:19:23 AM	6.66
11:20:23 AM	6.24
11:21:23 AM	8.37
11:22:23 AM	8.7
11:23:23 AM	9.76
11:24:23 AM	8.58
11:25:23 AM	6.08
11:26:23 AM	4.62
11:27:23 AM	5.55

DATA

Time	THC
11:28:23 AM	6.38
11:29:23 AM	7.62
11:30:23 AM	8.57
11:31:23 AM	7.47
11:32:23 AM	7.39
11:33:23 AM	9.44
11:34:23 AM	8.74
11:35:23 AM	9.15
11:36:23 AM	9.34
11:37:23 AM	9.01
11:38:23 AM	8.8
11:39:23 AM	9.13
11:40:23 AM	9.01
11:41:23 AM	9.35
11:42:23 AM	9.06
11:43:23 AM	9.21
11:44:23 AM	9.78
11:45:23 AM	9.5
11:46:23 AM	9.76
11:47:23 AM	8.83
11:48:23 AM	8.98
11:49:23 AM	8.97
11:50:23 AM	8.25
11:51:23 AM	8.71
11:52:23 AM	9.18
11:53:23 AM	8.84
11:54:23 AM	9.17
11:55:23 AM	8.34
11:56:23 AM	9.37
11:57:23 AM	8.82
11:58:23 AM	8.96
11:59:23 AM	9.05
12:00:23 PM	8.28
12:01:23 PM	8.41
12:02:23 PM	8.11
12:03:23 PM	8.53
12:04:23 PM	8.91
12:05:23 PM	2.55
12:06:23 PM	0.55
12:07:23 PM	35.45
12:08:23 PM	5.97
12:09:23 PM	18.58
12:10:23 PM	18.15
12:11:23 PM	18.06
12:12:23 PM	18.65
12:13:23 PM	15.15
12:14:23 PM	14.51
12:15:23 PM	15.16

DATA

Time	THC
12:16:23 PM	15.6
12:17:23 PM	15.95
12:18:23 PM	16.29
12:19:23 PM	17.61
12:20:23 PM	16.89
12:21:23 PM	16.78
12:22:23 PM	16.54
12:23:23 PM	16.87
12:24:23 PM	16.77
12:25:23 PM	17.01
12:26:23 PM	16.76
12:27:23 PM	16.64
12:28:23 PM	16.01
12:29:23 PM	16.5
12:30:23 PM	17.07
12:31:23 PM	16.4
12:32:23 PM	16.76
12:33:23 PM	16.53
12:34:23 PM	16.41
12:35:23 PM	17.23
12:36:23 PM	16.71
12:37:23 PM	17.07
12:38:23 PM	16.91
12:39:23 PM	16.66
12:40:23 PM	17.01
12:41:23 PM	15.92
12:42:23 PM	17.59
12:43:23 PM	17.34
12:44:23 PM	17.11
12:45:23 PM	16.72
12:46:23 PM	17.11
12:47:23 PM	15.69
12:48:23 PM	14.54
12:49:23 PM	14.94
12:50:23 PM	15.3
12:51:23 PM	15.56
12:52:23 PM	14.99
12:53:23 PM	16.28
12:54:23 PM	16.43
12:55:23 PM	16.78
12:56:23 PM	16.91
12:57:23 PM	17.36
12:58:23 PM	17.37
12:59:23 PM	17.47
1:00:23 PM	16.9
1:01:23 PM	15.72
1:02:23 PM	15.49
1:03:23 PM	15.59

DATA

Time	THC
1:04:23 PM	16.92
1:05:23 PM	16.35
1:06:23 PM	16.61
1:07:23 PM	16.71
1:08:23 PM	15.63
1:09:23 PM	15.28
1:10:23 PM	15.5
1:11:23 PM	15.68
1:12:23 PM	15.84
1:13:23 PM	15.96
1:14:23 PM	15.95
1:15:23 PM	16.34
1:16:23 PM	17.38
1:17:23 PM	16.79
1:18:23 PM	16.8
1:19:23 PM	16.43
1:20:23 PM	15.93
1:21:23 PM	16.25
1:22:23 PM	16.17
1:23:23 PM	15.95
1:24:23 PM	15.91
1:25:23 PM	15.44
1:26:23 PM	15.59
1:27:23 PM	16.85
1:28:23 PM	15.9
1:29:23 PM	16.27
1:30:23 PM	16.6
1:31:23 PM	16.47
1:32:23 PM	16.42
1:33:23 PM	15.09
1:34:23 PM	15.72
1:35:23 PM	16.08
1:36:23 PM	16.1
1:37:23 PM	15.98
1:38:23 PM	15.67
1:39:23 PM	16.76
1:40:23 PM	15.67
1:41:23 PM	15.94
1:42:23 PM	16.06
1:43:23 PM	15.37
1:44:23 PM	13.45
1:45:23 PM	13.38
1:46:23 PM	14.25
1:47:23 PM	14.29
1:48:23 PM	13.87
1:49:23 PM	14.01
1:50:23 PM	13.98
1:51:23 PM	15.8

DATA

Time	THC
1:52:23 PM	15.28
1:53:23 PM	15.56
1:54:23 PM	15.63
1:55:23 PM	15.64
1:56:23 PM	15.67
1:57:23 PM	15.74
1:58:23 PM	15.6
1:59:23 PM	15.42
2:00:23 PM	15.4
2:01:23 PM	15.12
2:02:23 PM	16.2
2:03:23 PM	14.97
2:04:23 PM	15.43
2:05:23 PM	15.67
2:06:23 PM	15.48
2:07:23 PM	15.4
2:08:23 PM	14.8
2:09:23 PM	15.11
2:10:23 PM	15.25
2:11:23 PM	15.39
2:12:23 PM	14.13
2:13:23 PM	14.54
2:14:23 PM	15.65
2:15:23 PM	15.15
2:16:23 PM	15.34
2:17:23 PM	15.18
2:18:23 PM	14.57
2:19:23 PM	14.91
2:20:23 PM	15.16
2:21:23 PM	15.47
2:22:23 PM	14.83
2:23:23 PM	14.19
2:24:23 PM	12.47
2:25:23 PM	13.46
2:26:23 PM	12.88
2:27:23 PM	14.47
2:28:23 PM	15.25
2:29:23 PM	15.64
2:30:23 PM	15.65
2:31:23 PM	13.56
2:32:23 PM	12.85
2:33:23 PM	13.17
2:34:23 PM	13.63
2:35:23 PM	13.86
2:36:23 PM	14.13
2:37:23 PM	15.38
2:38:23 PM	14.73
2:39:23 PM	15.01

DATA

Time	THC
2:40:23 PM	14.88
2:41:23 PM	17.52
2:42:23 PM	17.53
2:43:23 PM	33.2
2:44:23 PM	33.61
2:45:23 PM	33.78
2:46:23 PM	14.58
2:47:23 PM	0
2:48:23 PM	1.55
2:49:23 PM	0
2:50:23 PM	0.63
2:51:23 PM	0
2:52:23 PM	0
2:53:23 PM	0.06
2:54:23 PM	0.01
2:55:23 PM	0.01
2:56:23 PM	0.02
2:57:23 PM	0.04
2:58:23 PM	0.15
2:59:23 PM	0.2
3:00:23 PM	0.3
3:01:23 PM	0.37
3:02:23 PM	0.46
3:03:23 PM	0.51
3:04:23 PM	0.56
3:05:23 PM	0.26
3:06:23 PM	0
3:07:23 PM	0.01
3:08:23 PM	0
3:09:23 PM	0.02
3:10:23 PM	0.02
3:11:23 PM	0.07
3:12:23 PM	0.61
3:13:23 PM	0.78
3:14:23 PM	0.4
3:15:23 PM	0.42
3:16:23 PM	0.29
3:17:23 PM	0.39
3:18:23 PM	0.7
3:19:23 PM	0.28
3:20:23 PM	0.18
3:21:23 PM	0.3
3:22:23 PM	0.28
3:23:23 PM	0.46
3:24:23 PM	0.47
3:25:23 PM	0.46
3:26:23 PM	0.46
3:27:23 PM	0.45

DATA

Time	THC
3:28:23 PM	0.46
3:29:23 PM	0.45
3:30:23 PM	0.46
3:31:23 PM	0.46
3:32:23 PM	0.44
3:33:23 PM	0.44
3:34:23 PM	0.44
3:35:23 PM	0.44
3:36:23 PM	0.44
3:37:23 PM	0.44
3:38:23 PM	0.42
3:39:23 PM	0.41
3:40:23 PM	0.4
3:41:23 PM	0.4
3:42:23 PM	0.38
3:43:23 PM	0.36
3:44:23 PM	1.33
3:45:23 PM	2.18
3:46:23 PM	25.51
3:47:23 PM	25.47
3:48:23 PM	6.54
3:49:23 PM	15.11
3:50:23 PM	18.44
3:51:23 PM	17.87
3:52:23 PM	17.85
3:53:23 PM	17.93
3:54:23 PM	11.47
3:55:23 PM	1.75
3:56:23 PM	11.33
3:57:23 PM	18.04
3:58:23 PM	11.44
3:59:23 PM	5.48
4:00:23 PM	9.74
4:01:23 PM	5.12
4:02:23 PM	2.15
4:03:23 PM	0.72
4:04:23 PM	2.44
4:05:23 PM	1.22
4:06:23 PM	1.71
4:07:23 PM	1.27
4:08:23 PM	2.24
4:09:23 PM	1.93
4:10:23 PM	3.04
4:11:23 PM	1.86
4:12:23 PM	2.57
4:13:23 PM	2.86
4:14:23 PM	2.27
4:15:23 PM	3.46

DATA

Time	THC
4:16:23 PM	2.58
4:17:23 PM	1.86
4:18:23 PM	3.35
4:19:23 PM	3.42
4:20:23 PM	3.11
4:21:23 PM	2.73
4:22:23 PM	2.54
4:23:23 PM	2.22
4:24:23 PM	1.49
4:25:23 PM	1.48
4:26:23 PM	2.16
4:27:23 PM	3.04
4:28:23 PM	1.51
4:29:23 PM	1.54
4:30:23 PM	2.27
4:31:23 PM	2.77
4:32:23 PM	0.23
4:33:23 PM	1.27
4:34:23 PM	0.38
4:35:23 PM	2.46
4:36:23 PM	0.84
4:37:23 PM	0.1
4:38:23 PM	1.68
4:39:23 PM	0.98
4:40:23 PM	1.64
4:41:23 PM	0.15
4:42:23 PM	1.26
4:43:23 PM	0.67
4:44:23 PM	0.23
4:45:23 PM	0.54
4:46:23 PM	2.79
4:47:23 PM	2.68
4:48:23 PM	2.69
4:49:23 PM	2.7
4:50:23 PM	2.6
4:51:23 PM	2.49
4:52:23 PM	2.42
4:53:23 PM	2.33
4:54:23 PM	2.32
4:55:23 PM	2.31
4:56:23 PM	2.34
4:57:23 PM	2.38
4:58:23 PM	2.4
4:59:23 PM	2.41
5:00:23 PM	2.4
5:01:23 PM	2.42
5:02:23 PM	2.44
5:03:23 PM	2.41

DATA

Time	THC
5:04:23 PM	2.43
5:05:23 PM	2.44
5:06:23 PM	2.41
5:07:23 PM	2.4
5:08:23 PM	2.37
5:09:23 PM	2.41
5:10:23 PM	2.72
5:11:23 PM	2.47
5:12:23 PM	2.42
5:13:23 PM	2.4
5:14:23 PM	2.38
5:15:23 PM	2.38
5:16:23 PM	2.36
5:17:23 PM	1.56
5:18:23 PM	0.48
5:19:23 PM	0.57
5:20:23 PM	0.33
5:21:23 PM	0.8
5:22:23 PM	1.14
5:23:23 PM	0.36
5:24:23 PM	0.81
5:25:23 PM	0.17
5:26:23 PM	0.96
5:27:23 PM	1.33
5:28:23 PM	0.47
5:29:23 PM	0.66
5:30:23 PM	0.62
5:31:23 PM	0.85
5:32:23 PM	0.02
5:33:23 PM	0.96
5:34:23 PM	0.39
5:35:23 PM	0.74
5:36:23 PM	0.17
5:37:23 PM	0.45
5:38:23 PM	0.61
5:39:23 PM	0.68
5:40:23 PM	0.1
5:41:23 PM	0
5:42:23 PM	0.32
5:43:23 PM	0.82
5:44:23 PM	0.59
5:45:23 PM	0.47
5:46:23 PM	0.56
5:47:23 PM	0.6
5:48:23 PM	1.12
5:49:23 PM	0.21
5:50:23 PM	0.46
5:51:23 PM	0.02

DATA

Time	THC
5:52:23 PM	0.76
5:53:23 PM	0.26
5:54:23 PM	0.66
5:55:23 PM	0.52
5:56:23 PM	0.73
5:57:23 PM	0
5:58:23 PM	1.22
5:59:23 PM	0.79
6:00:23 PM	0.73
6:01:23 PM	0.19
6:02:23 PM	0
6:03:23 PM	0.43
6:04:23 PM	0.96
6:05:23 PM	1.84
6:06:23 PM	0.95
6:07:23 PM	1.63
6:08:23 PM	0.14
6:09:23 PM	0.51
6:10:23 PM	0.57
6:11:23 PM	0
6:12:23 PM	0.9
6:13:23 PM	0.58
6:14:23 PM	1.04
6:15:23 PM	1.11
6:16:23 PM	1.53
6:17:23 PM	0.43
6:18:23 PM	0.06
6:19:23 PM	0.52
6:20:23 PM	0.58
6:21:23 PM	0.87
6:22:23 PM	0.4
6:23:23 PM	0.58
6:24:23 PM	0.05
6:25:23 PM	0.36
6:26:23 PM	0.43
6:27:23 PM	0.65
6:28:23 PM	0.73
6:29:23 PM	0.4
6:30:23 PM	0.54
6:31:23 PM	0.5

Location US Steel - Clairton Mill Works
Source Cooling Tower
Project No. AST-2022-3353

Parameter	NOx - Outlet	THC - Outlet
Make	CAI	CAI
Model	600	700
S/N	B02006	1901016
Operating Range	0-1000	100
Cylinder ID		
Zero	NA	NA
Low	NA	EB0082190
Mid	EB0018809	EB0082190
High	EB0018809	EB0082190
Cylinder Certified Values		
Zero	NA	NA
Low	NA	30.1
Mid	504	30.1
High	504	30.1
Cylinder Expiration Date		
Zero	NA	NA
Low	NA	6/7/24
Mid	6/9/29	6/7/24
High	6/9/29	6/7/24

Calibration Data

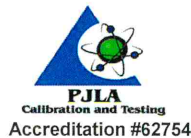
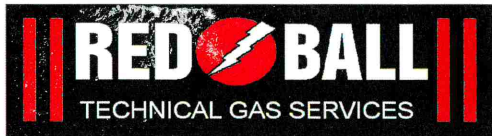
Location: US Steel - Clairton Mill Works

Source: Cooling Tower

Project No.: AST-2022-3353

Date: 12/28/22

Parameter	NOx - Outlet	THC - Outlet
Expected Average Concentration	500.00	6.00
Span Between		
Low	500.00	9.00
High	2,500.00	15.0
Desired Span	504.00	20.00
Low Range Gas		
Low	NA	5.00
High	NA	7.00
Mid Range Gas		
Low	201.60	9.00
High	302.40	11.00
High Range Gas		
Low	NA	16.00
High	NA	18.00
Actual Concentration (% or ppm)		
Zero	0.00	0.00
Low	NA	6.00
Mid	250.00	10.00
High	504.00	17.00
Response Time (seconds)	30.00	30.00
Upscale Calibration Gas (C_{MA})	Mid	Mid
Instrument Response (% or ppm)		
Zero	0.16	0.00
Low	NA	5.80
Mid	250.15	9.87
High	505.80	16.96
Performance (% of Span or Cal. Gas Conc.)		
Zero	0.03	0.00
Low	NA	3.20
Mid	0.03	1.08
High	0.36	0.00
Performance Criteria		
Zero	2.00	5.00
Low	NA	5.00
Mid	2.00	5.00
High	2.00	5.00
Status		
Zero	PASS	PASS
Low	NA	PASS
Mid	PASS	PASS
High	PASS	PASS



Red Ball Technical Gas Service
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150
PGVP Vendor ID # G12021

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number: EB0018809
Product ID Number: 124545
Cylinder Pressure: 1900 PSIG
COA #: EB0018809.20210510-0
Customer PO. NO.:
Customer:

Certification Date: 06/11/2021
Expiration Date: 06/09/2029
MFG Facility: - Shreveport - LA
Lot Number: EB0018809.20210510
Tracking Number: 084266253
Previous Certification Dates:

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Carbon Monoxide	504 PPM	±4 PPM	GCF	06/11/2021
Nitric Oxide	504 PPM	±4 PPM	Chemiluminescence	05/17/2021, 05/28/2021
Total Oxides of Nitrogen	504 PPM			
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
CC209344	CC209344.20180315	03/10/2029	GMIS	N2	CO	554 PPM	0.427	SRM 1681b
EB0002897	EB0002897.20191115	07/07/2028	GMIS	N2	NO	1430 PPM	0.497	SRM 2630
EB0078147	EB0078147.20191115	04/21/2028	GMIS	N2	NO	595 PPM	0.503	SRM 2630

Analytical Instrumentation

Component	Principle	Make	Model	Serial	MPC Date
NO	Chemiluminescence	Thermo	42i-HL	1162380008	04/20/2021
NO	Chemiluminescence	Thermo	42i-HL	1162380008	05/21/2021
CO	GCF	Thermo	T48i	11708001	06/10/2021

SMART-CERT



This is to certify the gases referenced have been calibrated/tested, and verified to meet the defined specifications. This calibration/test was performed using Gases or Scales that are traceable through National Institute of Standards and Technology (NIST) to the International System of Units (SI). The basis of compliance stated is a comparison of the measurement parameters to the specified or required calibration/testing process. The expanded uncertainties use a coverage factor of k=2 to approximate the 95% confidence level of the measurement, unless otherwise noted. This calibration certificate applies only to the item described and shall not be reproduced other than in full, without written approval from Red Ball Technical Gas Services. If not included, the uncertainty of calibrations are available upon request and were taken into account when determining pass or fail.

Jasmine Godfrey

Jasmine Godfrey
Analytical Chemist
Assay Laboratory: Red Ball TGS
Version 02-J, Revised on 2018-09-17



Greco Gas Inc.
Tarentum, PA

EPA Protocol Gas Mixture

Customer: Greco Gas Inc.
CGA: 350
Customer PO#: 8891
Cylinder #: EB0082190

Reference#: 053116SY-S
Certification Date: 06/07/2016
Expiration Date: 06/07/2024
Pressure, psig: 2000

Method: This standard was analyzed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards, Procedure G1 (May 2012).

Analyzed Cylinder-

Components	Certified Concentration	Expanded Uncertainty	Assay Dates
Propane	30.1ppm	0.7%	6/7/16
Nitrogen	Balance	-	-

Reference Standard-

Type/SRM Sample	Cylinder #	Concentration
Propane/GMIS	GCG-4745988Y	48.83ppm
Propane/ SRM	CAL018130	48.83ppm

Instrument-

Instrument/ Model	Serial Number	Last Date Calibrated	Analytical Method
Micro GC/ MTI M200	170612	6/7/2016	Thermal Conductivity

These mixtures were prepared gravimetrically using a high load high sensitivity electronic scale. Prior to filling the scale is verified for accuracy throughout the target mass range against applicable NIST traceable weights. We certify that the weights are calibrated to ASTM E617-97 Echelon 1 tolerances.

This report states accurately the results of the investigation made upon the material submitted to the analytical laboratory. Every effort has been made to determine objectively the information requested. However, in connection with this report, Global Calibration Gases LLC shall have no liability in excess of the established charge for this service. Assayed at Global Calibration Gases LLC, Sarasota, Florida. Analytical methodology does not require correction for analytical interference.

The calibration results published in this certificate were obtained using equipment and standards capable of producing results that are traceable to National Institute of Standards and Technology (NIST) and through NIST to the International System of Units (SI). The expanded uncertainties, if included on this certificate, use a coverage factor of $k=2$ to approximate the 95% confidence level of the measurement, unless otherwise noted. If uncertainties are not included on this certificate, they are available upon request. This calibration certificate applies only to the item described and shall not be reproduced other than in full, without written approval from the calibration facility. Calibration certificates without signatures are not valid. This calibration meets the requirements of ISO/IEC 17025:2005. Do not use this standard when cylinder pressure is below 150 psig.



Produced by:
Global Calibration Gases LLC.
1090 Commerce Blvd N.
Sarasota, FL 34243
PGVP Vendor ID.: N22016

Principal Analyst: Keith Walker

Date: 06/07/2016

Principal Reviewer: James H. Hume

Date: 06/07/2016

Location: US Steel - Clairton Mill Works
Source: Cooling Tower
Project No.: AST-2022-3353
Date: 12/28/22

Analyzer Make: CAI
Analyzer Model: 600
Analyzer SN: B02006
EnviroNics ID: 8110
Component/Balance Gas: Nox/N2
Cylinder Gas ID (Dilution): EB0018809
Cylinder Gas Concentration (Dilution), ppm: 504
Cylinder Gas ID (Mid-Level): SX90449
Cylinder Gas Concentration (Mid-Level), ppm: 50.38

Pass

Target Mass Flow Controllers	Target Dilution (%)	Target Flow Rate lpm	Target Concentration (ppm)	Actual Concentration (ppm)	Injection 1 Analyzer Concentration (ppm)	Injection 2 Analyzer Concentration (ppm)	Injection 3 Analyzer Concentration (ppm)	Average Analyzer Concentration (ppm)	Difference (ppm)	Average Error (± 2 %)
10L/10L*	90.0	7.0	453.6	453.6	451.7	454.8	455.2	453.89	0.29	0.1%
10L/10L*	80.0	7.0	403.2	403.2	404.9	404.4	404.9	404.71	1.51	0.4%
10L/1L	20.0	4.0	100.8	100.8	100.7	100.1	100.3	100.38	-0.42	-0.4%
10L/1L	10.0	4.0	50.4	50.4	51.3	51.3	51.2	51.24	0.84	1.7%

*Not all AST EnviroNics Units have 2-10L Mass Flow Controllers. For these units the 90% @ 7lpm and 80% @ 7lpm injections will not be conducted.


Average Analyzer Concentration (ppm)	Injection 1 Error (± 2 %)	Injection 2 Error (± 2 %)	Injection 3 Error (± 2 %)
453.89	-0.5%	0.2%	0.3%
404.71	0.0%	-0.1%	0.0%
100.38	0.3%	-0.3%	0.0%
51.24	0.1%	0.1%	-0.1%

Mid-Level Supply Gas Calibration Direct to Analyzer

Calibration Gas Concentration (ppm)	Injection 1 Analyzer Concentration (ppm)	Injection 2 Analyzer Concentration (ppm)	Injection 3 Analyzer Concentration (ppm)	Average Analyzer Concentration (ppm)	Difference (ppm)	Average Error (± 2 %)
50.38	50.9	50.3	50.6	50.60	0.22	0.4%

PROCEDURE:

Connect the dilution and high-level calibration gas to the EnviroNics gas divider. Flow the mixed gases according to the ratios provided in the above table. Repeat the procedure for three trials. An additional mid-level calibration gas, within 10% of one of the predicted concentrations, should be fed directly into the analyzer bypassing the gas divider. Repeat the procedure for three trials.

	Mass Flow Controller Calibration	Document ID	620.009
		Revision	20.0
		Effective Date	8/26/20
Issuing Department	Tech Services	Page	1 of 1

Dilution System Make:	Envionics
Dilution System Model:	4040
Dilution System S/N:	8110
Calibration Equipment Make:	Alicat Scientific
Calibration Equipment Model:	M-10SLPD/5MM-D/5M, M-1SLPM-D/5M
Calibration Equipment S/N:	1
Flow Cell S/N:	197206
Flow Cell S/N:	197208
Calibration Gas:	Nitrogen
Barometric Pressure, mmHg:	29
Ambient Temperature, °F:	70

Mass Flow Controller ID	#1			# 2			# 3		
Size, ccm:	10,000			10,000			1,000		
Make:	Envionics			Envionics			Envionics		
Model:	EFC-202			EFC-202			EFC-202		
S/N:									
	Set Flow cc/min	True Flow cc/min	Difference	Set Flow cc/min	True Flow cc/min	Difference	Set Flow cc/min	True Flow cc/min	Difference
5%	500	503	0.6%	500	506	1.2%	50	51	2.2%
10%	1,000	1,017	1.7%	1,000	1,014	1.4%	100	99	1.3%
20%	2,000	2,040	2.0%	2,000	2,039	2.0%	200	200	0.0%
30%	3,000	3,071	2.4%	3,000	3,066	2.2%	300	300	0.1%
40%	4,000	4,086	2.2%	4,000	4,084	2.1%	400	402	0.4%
50%	5,000	5,096	1.9%	5,000	5,104	2.1%	500	499	0.2%
60%	6,000	6,115	1.9%	6,000	6,109	1.8%	600	603	0.6%
70%	7,000	7,129	1.8%	7,000	7,128	1.8%	700	703	0.5%
80%	8,000	8,150	1.9%	8,000	8,136	1.7%	800	807	0.9%
90%	9,000	9,168	1.9%	9,000	9,161	1.8%	900	914	1.6%
100%	10,000	10,182	1.8%	10,000	10,176	1.8%	1,000	1,017	1.7%

Note: The mass flow controller's calibration values are used by the dilution system's operating software to improve accuracy. These calibrations are not necessarily indicative of the systems overall performance. Performance is verified by conducting a Method 205 prior to each field use.

Calibration Performed By: Leo Sullivan

Date: 6/1/2021

Expiration Date: 6/1/2022

**MATHESON**

ask. . The Gas Professionals™

1700 Scepter Rd

Waverly, TN 37185

931-296-3357

Certificate of Analysis - EPA Protocol Mixtures

Customer: MATHESON VALLEY
903 THOMPSON RUN RD
WEST MIFFLIN, PA 15122

Customer PO#:
K56-1684

Part #
G2688367

Protocol: Reference #:
G1 773342-3

Lot#:
9300611873

Cylinder Number: SX90449

Cylinder Pressure: 1900 psig

Last Analysis Date: 9/28/2020

Expiration Date: 9/21/2028

**DO NOT USE THIS CYLINDER WHEN THE PRESSURE
FALLS BELOW 100 PSIG**

REPLICATE RESPONSES

Component: Carbon Monoxide

Date: 9/21/2020

Certified Conc: 49.26 ppm +/- 0.15 ppm ABS

49.22

49.29

49.27

Component: Nitric Oxide

Date: 9/21/2020

Date: 9/28/2020

Certified Conc: 50.38 ppm +/- 0.16 ppm ABS

50.21

50.41

50.37

50.45

50.40

50.44

NOx: 50.42 ppm Reference Only

BALANCE GAS: Nitrogen

REFERENCE STANDARDS:

Component: Carbon Monoxide

Reference Standard: NTRM

Cylinder #: ND42697

Concentration: 98.79ppm +/- 0.83ppm (abs)

Exp. Date: 8/13/2021

SRM or Cert #: N/A

Sample #: 151102

Component: Nitric Oxide

Reference Standard: PRM

Cylinder #: APEX1257580

Concentration: 48.99ppm +/- 0.20ppm (abs)

Exp. Date: 5/23/2022

SRM or Cert #: C1678310.02

Sample #: N/A

CERTIFICATION INSTRUMENTS

Component: Carbon Monoxide

Make/Model: HORIBA VIA-510

Serial Number: XT4F064G

Measurement Principle: NDIR

Last Calibration: 9/17/2020

Component: Nitric Oxide

Make/Model: CAI 700

Serial Number: 1707006

Measurement Principle: CHEMI

Last Calibration: 9/14/2020

Notes:

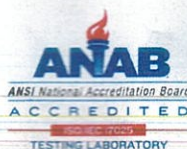
The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62020, PGVP Participation Date: 01/01/20, PGVP Renewal Date: 01/01/21

The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

Analyst:

Cierra Freed
Cierra Freed

Accredited by:
ANAB



Date: 10/2/2020

Appendix B

Alliance Source Testing, LLC- Pittsburgh

20 Parkway View Drive
Pittsburgh, PA 15205

U.S. Steel – Clairton, PA
Client Project #22-3353

Analytical Report
(1222-184)

EPA Method TO-15 Analysis

TO-15 Target Compound List
Top 10 Tentatively Identified Compounds (TICs)



Enthalpy Analytical, LLC

Phone: (919) 850 - 4392 / Fax: (919) 850 - 9012 / www.enthalpy.com
800-1 Capitola Drive Durham, NC 27713-4385

I certify that to the best of my knowledge all analytical data presented in this report:

- Have been checked for completeness
- Are accurate, error-free, and legible
- Have been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s)

This analytical report was prepared in Portable Document Format (.PDF). This report shall not be reproduced except in full without approval of the laboratory. This will provide assurance that parts of a report are not taken out of context.

Kristen H Bounds

Report Issued: 01/20/2023



Results

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R1
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-28 10:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300031.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 10:12
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	0.127	0.0386	0.0350	0.222	0.0676	0.0612	
Freon 12 (CCl2F2)	ND	0.0392	0.0350	ND	0.197	0.176	
Freon 114 (C2Cl2F4)	ND	0.401	0.0350	ND	2.85	0.249	
Chloromethane	0.192	0.0396	0.0350	0.402	0.0830	0.0735	
Chloroethene (Vinyl chloride)	ND	0.0400	0.0350	ND	0.104	0.0909	
1,3-Butadiene	ND	0.0389	0.0350	ND	0.0875	0.0787	
Bromomethane	0.0611	0.0392	0.0350	0.241	0.155	0.138	
Chloroethane	ND	0.0406	0.0350	ND	0.109	0.0939	
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	
Freon 11 (CCl3F)	0.0358	0.0422	0.0350	0.204	0.241	0.200	J, m
Ethanol	6.02	0.0396	0.0400	11.5	0.0759	0.0766	
Acrolein	0.443	0.0394	0.0350	1.03	0.0918	0.0816	
Freon 113 (C2Cl3F3)	ND	0.0406	0.0350	ND	0.316	0.273	
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	
Carbon disulfide	0.222	0.0399	0.0350	0.703	0.126	0.111	
Isopropyl alcohol	0.277	0.0399	0.0350	0.691	0.0996	0.0874	
Allyl chloride (3-chloropropene)	ND	0.0432	0.0350	ND	0.137	0.111	
Acetonitrile	1.65	0.0399	0.0350	2.82	0.0681	0.0597	
Methylene chloride	0.866	0.0410	0.0350	3.06	0.145	0.124	
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	
Acrylonitrile	0.0678	0.0407	0.0350	0.150	0.0898	0.0772	
Hexane	0.766	0.0406	0.0350	2.74	0.146	0.125	
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	
Methyl ethyl ketone (2-Butanone)	0.231	0.0414	0.0350	0.693	0.124	0.105	
Ethyl acetate	0.136	0.0399	0.0350	0.499	0.146	0.128	
Chloroform	1.88	0.0401	0.0350	9.33	0.199	0.174	
Tetrahydrofuran	0.306	0.0405	0.0350	0.919	0.121	0.105	
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	
Cyclohexane	0.0437	0.0410	0.0350	0.153	0.143	0.122	
Carbon tetrachloride	ND	0.0403	0.0350	ND	0.258	0.224	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R1
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-28 10:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300031.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 10:12
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Benzene	24.8	0.0402	0.0350	80.4	0.131	0.114	
2,2,4-trimethylpentane	ND	0.0414	0.0350	ND	0.196	0.166	
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	
Heptane	ND	0.0405	0.0350	ND	0.169	0.146	
Trichloroethene	1.97	0.0404	0.0350	10.7	0.221	0.191	
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	
Methyl methacrylate	0.0542	0.0419	0.0350	0.226	0.174	0.146	
1,4-Dioxane	0.0354	0.0401	0.0350	0.130	0.147	0.128	J
Bromodichloromethane	3.55	0.0404	0.0350	24.2	0.275	0.238	
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	
Methyl isobutyl ketone	0.0511	0.0416	0.0350	0.213	0.173	0.146	
Toluene	6.59	0.0407	0.0350	25.2	0.156	0.134	
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	
Tetrachloroethene	0.0379	0.0409	0.0350	0.261	0.282	0.241	J
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	
Dibromochloromethane	5.52	0.0403	0.0350	47.8	0.349	0.303	
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	
Ethylbenzene	0.136	0.0397	0.0350	0.599	0.175	0.154	
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	
m-/p-Xylenes	0.578	0.0406	0.0350	2.55	0.179	0.154	
o-Xylene	0.191	0.0401	0.0350	0.845	0.177	0.154	
Styrene	0.0752	0.0392	0.0350	0.326	0.170	0.152	
Bromoform	3.26	0.0401	0.0350	34.2	0.422	0.368	
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	
4-Ethyltoluene	ND	0.0407	0.0350	ND	0.203	0.175	
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	
1,3,5-Trimethylbenzene	0.0360	0.0406	0.0350	0.180	0.203	0.175	J
1,2,4-Trimethylbenzene	0.106	0.0400	0.0350	0.531	0.200	0.175	m
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R1
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-28 10:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300031.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 10:12
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	
Naphthalene	0.0721	0.0403	0.0350	0.384	0.215	0.186	
1-Bromopropane	ND	0.0397	0.0350	ND	0.203	0.179	
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	
n-Octane	ND	0.0412	0.0350	ND	0.196	0.166	
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
n-Propylbenzene	ND	0.0410	0.0350	ND	0.205	0.175	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	762,285	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,820,959	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,582,022	16.59	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R1
Sample Info. 1222-184; *10=50mL load; MP2
Sampling Date 2022-12-28 10:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010423B.v1
Data File X2300043.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 21:14
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	51.5	0.401	0.350	124	0.968	0.845	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	920,571	11.04	5.21	pass, m

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R2
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-28 11:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300032.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 11:43
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	0.100	0.0386	0.0350	0.176	0.0676	0.0612	
Freon 12 (CCl2F2)	ND	0.0392	0.0350	ND	0.197	0.176	
Freon 114 (C2Cl2F4)	ND	0.401	0.0350	ND	2.85	0.249	
Chloromethane	0.408	0.0396	0.0350	0.857	0.0830	0.0735	
Chloroethene (Vinyl chloride)	1.98	0.0400	0.0350	5.16	0.104	0.0909	m
1,3-Butadiene	ND	0.0389	0.0350	ND	0.0875	0.0787	
Bromomethane	0.0575	0.0392	0.0350	0.227	0.155	0.138	
Chloroethane	ND	0.0406	0.0350	ND	0.109	0.0939	
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	
Freon 11 (CCl3F)	ND	0.0422	0.0350	ND	0.241	0.200	
Ethanol	8.25	0.0396	0.0400	15.8	0.0759	0.0766	m
Acrolein	0.462	0.0394	0.0350	1.08	0.0918	0.0816	
Freon 113 (C2Cl3F3)	ND	0.0406	0.0350	ND	0.316	0.273	
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	
Carbon disulfide	0.171	0.0399	0.0350	0.541	0.126	0.111	
Isopropyl alcohol	0.323	0.0399	0.0350	0.808	0.0996	0.0874	
Allyl chloride (3-chloropropene)	ND	0.0432	0.0350	ND	0.137	0.111	
Acetonitrile	1.55	0.0399	0.0350	2.65	0.0681	0.0597	
Methylene chloride	0.961	0.0410	0.0350	3.39	0.145	0.124	
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	
Acrylonitrile	0.0455	0.0407	0.0350	0.100	0.0898	0.0772	
Hexane	0.789	0.0406	0.0350	2.83	0.146	0.125	
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	
Methyl ethyl ketone (2-Butanone)	0.206	0.0414	0.0350	0.618	0.124	0.105	
Ethyl acetate	0.183	0.0399	0.0350	0.671	0.146	0.128	
Chloroform	1.51	0.0401	0.0350	7.48	0.199	0.174	
Tetrahydrofuran	0.0816	0.0405	0.0350	0.245	0.121	0.105	m
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	
Cyclohexane	ND	0.0410	0.0350	ND	0.143	0.122	
Carbon tetrachloride	ND	0.0403	0.0350	ND	0.258	0.224	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R2
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-28 11:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300032.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 11:43
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Benzene	16.0	0.0402	0.0350	51.9	0.131	0.114	
2,2,4-trimethylpentane	ND	0.0414	0.0350	ND	0.196	0.166	
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	
Heptane	ND	0.0405	0.0350	ND	0.169	0.146	
Trichloroethene	3.28	0.0404	0.0350	17.9	0.221	0.191	
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	
Methyl methacrylate	ND	0.0419	0.0350	ND	0.174	0.146	
1,4-Dioxane	ND	0.0401	0.0350	ND	0.147	0.128	
Bromodichloromethane	3.02	0.0404	0.0350	20.6	0.275	0.238	
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	
Methyl isobutyl ketone	0.0430	0.0416	0.0350	0.179	0.173	0.146	m
Toluene	6.26	0.0407	0.0350	24.0	0.156	0.134	
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	
Tetrachloroethene	ND	0.0409	0.0350	ND	0.282	0.241	
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	
Dibromochloromethane	4.95	0.0403	0.0350	42.8	0.349	0.303	
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	
Ethylbenzene	0.0672	0.0397	0.0350	0.297	0.175	0.154	
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	
m-/p-Xylenes	0.405	0.0406	0.0350	1.79	0.179	0.154	
o-Xylene	0.130	0.0401	0.0350	0.573	0.177	0.154	
Styrene	0.0639	0.0392	0.0350	0.277	0.170	0.152	
Bromoform	3.35	0.0401	0.0350	35.1	0.422	0.368	
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	
4-Ethyltoluene	ND	0.0407	0.0350	ND	0.203	0.175	
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	
1,3,5-Trimethylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
1,2,4-Trimethylbenzene	0.0931	0.0400	0.0350	0.465	0.200	0.175	
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R2
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-28 11:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300032.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 11:43
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	
Naphthalene	0.122	0.0403	0.0350	0.652	0.215	0.186	
1-Bromopropane	ND	0.0397	0.0350	ND	0.203	0.179	
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	
n-Octane	ND	0.0412	0.0350	ND	0.196	0.166	
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
n-Propylbenzene	ND	0.0410	0.0350	ND	0.205	0.175	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	771,883	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,913,075	12.47	5.16	pass
Chlorobenzene-d5 (IS)	2,691,287	16.60	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R2
Sample Info. 1222-184; *10=50mL load; MP3
Sampling Date 2022-12-28 11:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010423B.v1
Data File X2300045.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 22:47
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	64.0	0.401	0.350	155	0.968	0.845	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	910,468	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R3
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-28 12:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300033.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 12:37
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	0.128	0.0386	0.0350	0.225	0.0676	0.0612	
Freon 12 (CCl2F2)	ND	0.0392	0.0350	ND	0.197	0.176	
Freon 114 (C2Cl2F4)	ND	0.401	0.0350	ND	2.85	0.249	
Chloromethane	0.211	0.0396	0.0350	0.442	0.0830	0.0735	
Chloroethene (Vinyl chloride)	ND	0.0400	0.0350	ND	0.104	0.0909	
1,3-Butadiene	ND	0.0389	0.0350	ND	0.0875	0.0787	
Bromomethane	0.0392	0.0392	0.0350	0.155	0.155	0.138	J, m
Chloroethane	ND	0.0406	0.0350	ND	0.109	0.0939	
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	
Freon 11 (CCl3F)	0.0885	0.0422	0.0350	0.505	0.241	0.200	m
Ethanol	8.53	0.0396	0.0400	16.3	0.0759	0.0766	
Acrolein	0.502	0.0394	0.0350	1.17	0.0918	0.0816	
Freon 113 (C2Cl3F3)	ND	0.0406	0.0350	ND	0.316	0.273	
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	
Carbon disulfide	0.243	0.0399	0.0350	0.770	0.126	0.111	
Isopropyl alcohol	0.556	0.0399	0.0350	1.39	0.0996	0.0874	
Allyl chloride (3-chloropropene)	ND	0.0432	0.0350	ND	0.137	0.111	
Acetonitrile	1.43	0.0399	0.0350	2.45	0.0681	0.0597	
Methylene chloride	1.01	0.0410	0.0350	3.57	0.145	0.124	
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	
Acrylonitrile	0.0501	0.0407	0.0350	0.111	0.0898	0.0772	
Hexane	0.782	0.0406	0.0350	2.80	0.146	0.125	
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	
Methyl ethyl ketone (2-Butanone)	0.272	0.0414	0.0350	0.816	0.124	0.105	
Ethyl acetate	0.190	0.0399	0.0350	0.697	0.146	0.128	
Chloroform	1.72	0.0401	0.0350	8.53	0.199	0.174	
Tetrahydrofuran	0.281	0.0405	0.0350	0.843	0.121	0.105	
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	
Cyclohexane	0.0453	0.0410	0.0350	0.159	0.143	0.122	m
Carbon tetrachloride	ND	0.0403	0.0350	ND	0.258	0.224	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R3
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-28 12:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300033.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 12:37
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m ³)	RL (ug/m ³)	MDL (ug/m ³)	Flags
Benzene	19.6	0.0402	0.0350	63.8	0.131	0.114	
2,2,4-trimethylpentane	ND	0.0414	0.0350	ND	0.196	0.166	
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	
Heptane	ND	0.0405	0.0350	ND	0.169	0.146	
Trichloroethene	3.60	0.0404	0.0350	19.7	0.221	0.191	
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	
Methyl methacrylate	ND	0.0419	0.0350	ND	0.174	0.146	
1,4-Dioxane	ND	0.0401	0.0350	ND	0.147	0.128	
Bromodichloromethane	3.16	0.0404	0.0350	21.5	0.275	0.238	m
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	
Methyl isobutyl ketone	0.0439	0.0416	0.0350	0.183	0.173	0.146	
Toluene	5.56	0.0407	0.0350	21.3	0.156	0.134	
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	
Tetrachloroethene	0.0496	0.0409	0.0350	0.342	0.282	0.241	
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	
Dibromochloromethane	4.92	0.0403	0.0350	42.6	0.349	0.303	
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	
Ethylbenzene	0.101	0.0397	0.0350	0.445	0.175	0.154	
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	
m-/p-Xylenes	0.398	0.0406	0.0350	1.76	0.179	0.154	
o-Xylene	0.138	0.0401	0.0350	0.607	0.177	0.154	
Styrene	0.0650	0.0392	0.0350	0.281	0.170	0.152	
Bromoform	3.01	0.0401	0.0350	31.6	0.422	0.368	
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	
4-Ethyltoluene	ND	0.0407	0.0350	ND	0.203	0.175	
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	
1,3,5-Trimethylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
1,2,4-Trimethylbenzene	0.0730	0.0400	0.0350	0.365	0.200	0.175	
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R3
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-28 12:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300033.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 12:37
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	
Naphthalene	0.0595	0.0403	0.0350	0.317	0.215	0.186	
1-Bromopropane	ND	0.0397	0.0350	ND	0.203	0.179	
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	
n-Octane	ND	0.0412	0.0350	ND	0.196	0.166	
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
n-Propylbenzene	ND	0.0410	0.0350	ND	0.205	0.175	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	783,665	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,918,147	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,693,504	16.59	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name East Primary R3
Sample Info. 1222-184; *10=50mL load; MP2
Sampling Date 2022-12-28 12:00
Received Date 2022-12-28 00:00
Sample Type Sample
Batch Xavier_X010423B.v1
Data File X2300046.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-05 06:51
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.East Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	72.0	0.401	0.350	174	0.968	0.845	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	895,997	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R1
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-27 12:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300035.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 14:26
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	0.565	0.0386	0.0350	0.989	0.0676	0.0612	
Freon 12 (CCl2F2)	0.437	0.0392	0.0350	2.20	0.197	0.176	
Freon 114 (C2Cl2F4)	0.0399	0.401	0.0350	0.284	2.85	0.249	J
Chloromethane	0.574	0.0396	0.0350	1.20	0.0830	0.0735	
Chloroethene (Vinyl chloride)	ND	0.0400	0.0350	ND	0.104	0.0909	
1,3-Butadiene	0.101	0.0389	0.0350	0.227	0.0875	0.0787	
Bromomethane	0.0985	0.0392	0.0350	0.389	0.155	0.138	m
Chloroethane	0.0450	0.0406	0.0350	0.121	0.109	0.0939	
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	
Freon 11 (CCl3F)	1.25	0.0422	0.0350	7.12	0.241	0.200	
Ethanol	13.6	0.0396	0.0400	26.0	0.0759	0.0766	
Acrolein	0.973	0.0394	0.0350	2.27	0.0918	0.0816	
Freon 113 (C2Cl3F3)	0.0387	0.0406	0.0350	0.301	0.316	0.273	J
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	
Carbon disulfide	1.11	0.0399	0.0350	3.52	0.126	0.111	
Isopropyl alcohol	2.07	0.0399	0.0350	5.18	0.0996	0.0874	
Allyl chloride (3-chloropropene)	0.0520	0.0432	0.0350	0.165	0.137	0.111	
Acetonitrile	1.03	0.0399	0.0350	1.77	0.0681	0.0597	
Methylene chloride	2.72	0.0410	0.0350	9.62	0.145	0.124	
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	
Acrylonitrile	0.0662	0.0407	0.0350	0.146	0.0898	0.0772	
Hexane	0.878	0.0406	0.0350	3.14	0.146	0.125	
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	
Methyl ethyl ketone (2-Butanone)	0.432	0.0414	0.0350	1.30	0.124	0.105	
Ethyl acetate	0.424	0.0399	0.0350	1.55	0.146	0.128	
Chloroform	1.02	0.0401	0.0350	5.07	0.199	0.174	
Tetrahydrofuran	0.754	0.0405	0.0350	2.26	0.121	0.105	
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	
Cyclohexane	0.0798	0.0410	0.0350	0.279	0.143	0.122	
Carbon tetrachloride	0.0416	0.0403	0.0350	0.266	0.258	0.224	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R1
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-27 12:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300035.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 14:26
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Benzene	24.9	0.0402	0.0350	80.8	0.131	0.114	
2,2,4-trimethylpentane	0.0443	0.0414	0.0350	0.210	0.196	0.166	
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	
Heptane	0.185	0.0405	0.0350	0.771	0.169	0.146	
Trichloroethene	3.83	0.0404	0.0350	20.9	0.221	0.191	
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	
Methyl methacrylate	ND	0.0419	0.0350	ND	0.174	0.146	
1,4-Dioxane	0.0634	0.0401	0.0350	0.232	0.147	0.128	
Bromodichloromethane	2.06	0.0404	0.0350	14.0	0.275	0.238	
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	
Methyl isobutyl ketone	0.0875	0.0416	0.0350	0.364	0.173	0.146	
Toluene	6.16	0.0407	0.0350	23.6	0.156	0.134	
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	
Tetrachloroethene	0.0532	0.0409	0.0350	0.367	0.282	0.241	
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	
Dibromochloromethane	3.45	0.0403	0.0350	29.9	0.349	0.303	
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	
Ethylbenzene	0.151	0.0397	0.0350	0.668	0.175	0.154	
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	
m-/p-Xylenes	0.674	0.0406	0.0350	2.98	0.179	0.154	
o-Xylene	0.236	0.0401	0.0350	1.04	0.177	0.154	
Styrene	0.113	0.0392	0.0350	0.491	0.170	0.152	
Bromoform	2.29	0.0401	0.0350	24.0	0.422	0.368	
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	
4-Ethyltoluene	0.0482	0.0407	0.0350	0.241	0.203	0.175	m
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	
1,3,5-Trimethylbenzene	0.0497	0.0406	0.0350	0.248	0.203	0.175	
1,2,4-Trimethylbenzene	0.122	0.0400	0.0350	0.608	0.200	0.175	
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R1
Sample Info. 1222-184; 500mL load; MP3
Sampling Date 2022-12-27 12:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300035.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 14:26
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	
Naphthalene	0.0471	0.0403	0.0350	0.251	0.215	0.186	
1-Bromopropane	0.0766	0.0397	0.0350	0.392	0.203	0.179	
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	
n-Octane	0.0424	0.0412	0.0350	0.201	0.196	0.166	
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
n-Propylbenzene	0.0450	0.0410	0.0350	0.225	0.205	0.175	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	811,152	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,997,445	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,764,950	16.60	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R1
Sample Info. 1222-184; *10=50mL load; MP3
Sampling Date 2022-12-27 12:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010423B.v1
Data File X2300047.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-05 07:37
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R1.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	80.5	0.401	0.350	194	0.968	0.845	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	910,422	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R2
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-27 13:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300034.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 13:32
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	0.239	0.0386	0.0350	0.418	0.0676	0.0612	
Freon 12 (CCl2F2)	ND	0.0392	0.0350	ND	0.197	0.176	
Freon 114 (C2Cl2F4)	ND	0.401	0.0350	ND	2.85	0.249	
Chloromethane	0.550	0.0396	0.0350	1.15	0.0830	0.0735	
Chloroethene (Vinyl chloride)	1.79	0.0400	0.0350	4.64	0.104	0.0909	
1,3-Butadiene	0.0388	0.0389	0.0350	0.0873	0.0875	0.0787	J, m
Bromomethane	0.133	0.0392	0.0350	0.526	0.155	0.138	
Chloroethane	ND	0.0406	0.0350	ND	0.109	0.0939	
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	
Freon 11 (CCl3F)	0.0354	0.0422	0.0350	0.202	0.241	0.200	J, m
Ethanol	9.23	0.0396	0.0400	17.7	0.0759	0.0766	
Acrolein	0.472	0.0394	0.0350	1.10	0.0918	0.0816	
Freon 113 (C2Cl3F3)	ND	0.0406	0.0350	ND	0.316	0.273	
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	
Carbon disulfide	0.346	0.0399	0.0350	1.10	0.126	0.111	
Isopropyl alcohol	0.363	0.0399	0.0350	0.908	0.0996	0.0874	
Allyl chloride (3-chloropropene)	ND	0.0432	0.0350	ND	0.137	0.111	
Acetonitrile	1.54	0.0399	0.0350	2.63	0.0681	0.0597	m
Methylene chloride	0.744	0.0410	0.0350	2.63	0.145	0.124	
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	
Acrylonitrile	0.0650	0.0407	0.0350	0.143	0.0898	0.0772	
Hexane	0.379	0.0406	0.0350	1.36	0.146	0.125	
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	
Methyl ethyl ketone (2-Butanone)	0.429	0.0414	0.0350	1.28	0.124	0.105	
Ethyl acetate	0.100	0.0399	0.0350	0.367	0.146	0.128	
Chloroform	1.30	0.0401	0.0350	6.43	0.199	0.174	
Tetrahydrofuran	ND	0.0405	0.0350	ND	0.121	0.105	
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	
Cyclohexane	ND	0.0410	0.0350	ND	0.143	0.122	
Carbon tetrachloride	ND	0.0403	0.0350	ND	0.258	0.224	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R2
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-27 13:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300034.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 13:32
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
2,2,4-trimethylpentane	ND	0.0414	0.0350	ND	0.196	0.166	
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	
Heptane	0.0425	0.0405	0.0350	0.177	0.169	0.146	
Trichloroethene	6.52	0.0404	0.0350	35.6	0.221	0.191	
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	
Methyl methacrylate	0.0361	0.0419	0.0350	0.150	0.174	0.146	J
1,4-Dioxane	0.0393	0.0401	0.0350	0.144	0.147	0.128	J, m
Bromodichloromethane	3.46	0.0404	0.0350	23.6	0.275	0.238	
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	
Methyl isobutyl ketone	ND	0.0416	0.0350	ND	0.173	0.146	
Toluene	4.37	0.0407	0.0350	16.8	0.156	0.134	
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	
Tetrachloroethene	0.0808	0.0409	0.0350	0.557	0.282	0.241	
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	
Dibromochloromethane	6.63	0.0403	0.0350	57.4	0.349	0.303	
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	
Ethylbenzene	0.0585	0.0397	0.0350	0.258	0.175	0.154	
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	
m-/p-Xylenes	0.510	0.0406	0.0350	2.25	0.179	0.154	
o-Xylene	0.169	0.0401	0.0350	0.746	0.177	0.154	
Styrene	0.171	0.0392	0.0350	0.740	0.170	0.152	
Bromoform	5.01	0.0401	0.0350	52.6	0.422	0.368	
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	
4-Ethyltoluene	0.0424	0.0407	0.0350	0.212	0.203	0.175	m
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	
1,3,5-Trimethylbenzene	0.0451	0.0406	0.0350	0.225	0.203	0.175	
1,2,4-Trimethylbenzene	0.100	0.0400	0.0350	0.502	0.200	0.175	
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R2
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-27 13:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300034.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 13:32
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	
Naphthalene	0.298	0.0403	0.0350	1.59	0.215	0.186	
1-Bromopropane	ND	0.0397	0.0350	ND	0.203	0.179	
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	
n-Octane	ND	0.0412	0.0350	ND	0.196	0.166	
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
n-Propylbenzene	0.0375	0.0410	0.0350	0.187	0.205	0.175	J

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	782,716	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,905,714	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,699,158	16.59	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R2
Sample Info. 1222-184; *10=50mL load; MP2
Sampling Date 2022-12-27 13:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010423B.v1
Data File X2300048.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-05 08:24
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R2.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	42.7	0.401	0.350	103	0.968	0.845	
Benzene	31.8	0.402	0.350	103	1.31	1.14	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	897,170	11.04	5.21	pass
1,4-Difluorobenzene (IS)	3,313,553	12.46	5.16	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R3
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-27 14:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300036.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 15:23
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	0.263	0.0386	0.0350	0.460	0.0676	0.0612	
Freon 12 (CCl2F2)	ND	0.0392	0.0350	ND	0.197	0.176	
Freon 114 (C2Cl2F4)	ND	0.401	0.0350	ND	2.85	0.249	
Chloromethane	0.546	0.0396	0.0350	1.15	0.0830	0.0735	
Chloroethene (Vinyl chloride)	1.83	0.0400	0.0350	4.76	0.104	0.0909	m
1,3-Butadiene	0.0362	0.0389	0.0350	0.0814	0.0875	0.0787	J
Bromomethane	0.155	0.0392	0.0350	0.612	0.155	0.138	
Chloroethane	ND	0.0406	0.0350	ND	0.109	0.0939	
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	
Freon 11 (CCl3F)	0.0482	0.0422	0.0350	0.275	0.241	0.200	m
Ethanol	7.43	0.0396	0.0400	14.2	0.0759	0.0766	
Acrolein	0.440	0.0394	0.0350	1.03	0.0918	0.0816	m
Freon 113 (C2Cl3F3)	ND	0.0406	0.0350	ND	0.316	0.273	
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	
Carbon disulfide	0.344	0.0399	0.0350	1.09	0.126	0.111	
Isopropyl alcohol	0.272	0.0399	0.0350	0.680	0.0996	0.0874	
Allyl chloride (3-chloropropene)	ND	0.0432	0.0350	ND	0.137	0.111	
Acetonitrile	1.69	0.0399	0.0350	2.88	0.0681	0.0597	
Methylene chloride	0.748	0.0410	0.0350	2.64	0.145	0.124	
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	
Acrylonitrile	0.0551	0.0407	0.0350	0.122	0.0898	0.0772	m
Hexane	0.521	0.0406	0.0350	1.87	0.146	0.125	
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	
Methyl ethyl ketone (2-Butanone)	0.313	0.0414	0.0350	0.938	0.124	0.105	
Ethyl acetate	ND	0.0399	0.0350	ND	0.146	0.128	
Chloroform	1.06	0.0401	0.0350	5.28	0.199	0.174	
Tetrahydrofuran	ND	0.0405	0.0350	ND	0.121	0.105	
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	
Cyclohexane	ND	0.0410	0.0350	ND	0.143	0.122	
Carbon tetrachloride	ND	0.0403	0.0350	ND	0.258	0.224	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R3
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-27 14:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300036.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 15:23
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
2,2,4-trimethylpentane	ND	0.0414	0.0350	ND	0.196	0.166	
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	
Heptane	0.0384	0.0405	0.0350	0.160	0.169	0.146	J
Trichloroethene	2.06	0.0404	0.0350	11.3	0.221	0.191	
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	
Methyl methacrylate	0.0458	0.0419	0.0350	0.190	0.174	0.146	
1,4-Dioxane	ND	0.0401	0.0350	ND	0.147	0.128	
Bromodichloromethane	2.98	0.0404	0.0350	20.3	0.275	0.238	
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	
Methyl isobutyl ketone	0.0446	0.0416	0.0350	0.186	0.173	0.146	
Toluene	7.15	0.0407	0.0350	27.4	0.156	0.134	
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	
Tetrachloroethene	ND	0.0409	0.0350	ND	0.282	0.241	
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	
Dibromochloromethane	6.24	0.0403	0.0350	54.0	0.349	0.303	
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	
Ethylbenzene	0.0880	0.0397	0.0350	0.388	0.175	0.154	
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	
m-/p-Xylenes	0.617	0.0406	0.0350	2.72	0.179	0.154	
o-Xylene	0.184	0.0401	0.0350	0.813	0.177	0.154	
Styrene	0.160	0.0392	0.0350	0.694	0.170	0.152	
Bromoform	4.97	0.0401	0.0350	52.3	0.422	0.368	
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	
4-Ethyltoluene	0.0391	0.0407	0.0350	0.195	0.203	0.175	J, m
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	
1,3,5-Trimethylbenzene	0.0412	0.0406	0.0350	0.206	0.203	0.175	
1,2,4-Trimethylbenzene	0.122	0.0400	0.0350	0.607	0.200	0.175	
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R3
Sample Info. 1222-184; 500mL load; MP2
Sampling Date 2022-12-27 14:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010323C.v1
Data File X2300036.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 15:23
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	
Naphthalene	0.221	0.0403	0.0350	1.18	0.215	0.186	
1-Bromopropane	ND	0.0397	0.0350	ND	0.203	0.179	
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	
n-Octane	ND	0.0412	0.0350	ND	0.196	0.166	
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	
n-Propylbenzene	ND	0.0410	0.0350	ND	0.205	0.175	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	811,452	11.04	5.21	pass
1,4-Difluorobenzene (IS)	3,071,308	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,834,039	16.60	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name West Primary R3
Sample Info. 1222-184; *10=50mL load; MP3
Sampling Date 2022-12-27 14:00
Received Date 2022-12-29 00:00
Sample Type Sample
Batch Xavier_X010423B.v1
Data File X2300050.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-05 10:04
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID 1222-184.West Primary R3.Bag

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	66.8	0.401	0.350	161	0.968	0.845	
Benzene	28.2	0.402	0.350	91.5	1.31	1.14	

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	882,223	11.04	5.21	pass
1,4-Difluorobenzene (IS)	3,287,867	12.46	5.16	pass

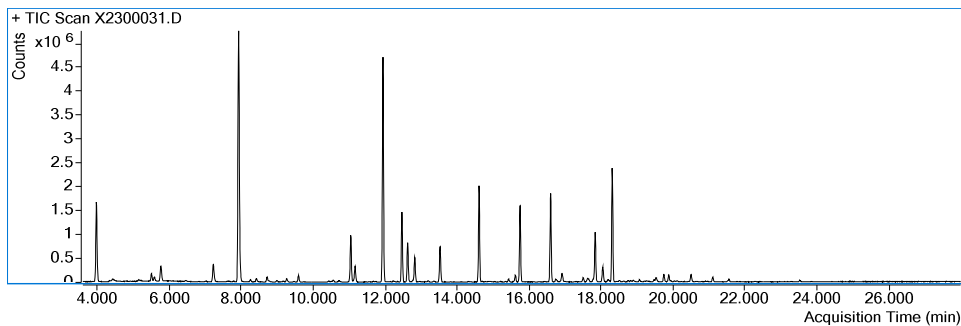
(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Unknown Analysis Report for Target Hits

DataFileName	X2300031.D	DataPathName	N:\GCMS\2023\Q1\Xavier\Data\Jan23\X010323A TICs
SampleName	1222-184.East Primary R1.Bag	SampleType	Sample
AcqMethodFile	TO15_SCNV6.M	AcqMethodPath	
Acq Time	1/4/23 10:12 AM	Operator	TDD
InstrumentName	Xavier	Dilution	1



Component Table

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
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Operator's Assessments

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
	2-chloro-1,3-butadiene; (chloroprene)	126-99-8					ND	
	Isopropyl ether; Diisopropyl ether	108-20-3					ND	
	2-Ethoxy-2-methylpropane; Ethyl tert-butyl ether; ETBE	637-92-3					ND	
	2-Methoxy-2-methylbutane; tert-amyl methyl ether	994-05-8					ND	
	2-Methyl-2-propanol; tert-butyl alcohol; TBA	75-65-0					ND	
	sec-Butylbenzene; 2-Phenylbutane	135-98-8					ND	
	tert-Butylbenzene	98-06-6					ND	
	2-Isopropyltoluene; o-Cymene	527-84-4					ND	
	n-Butylbenzene	104-51-8					ND	

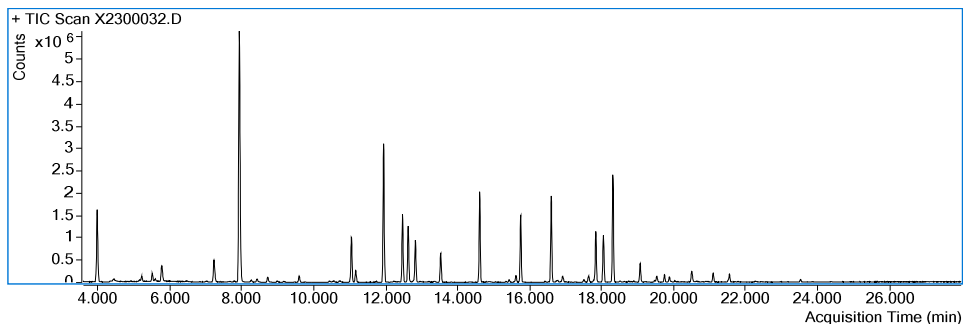
Internal Standards

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	(ppb)	ISTD
11.04338333	Methane, bromochloro-	74-97-5	CH2BrCl	<input checked="" type="checkbox"/>	2383334	98.5	5.21	<input checked="" type="checkbox"/>
12.46763333	Benzene, 1,4-difluoro-	540-36-3	C6H4F2	<input checked="" type="checkbox"/>	3354894	98.6	5.16	<input checked="" type="checkbox"/>
16.5992	Chlorobenzene-d5	3114-55-4	C6D5Cl	<input checked="" type="checkbox"/>	4196970	94.4	4.92	<input checked="" type="checkbox"/>

Unknown Analysis Report for Target Hits

DataFileName X2300032.D
SampleName 1222-184.East Primary R2.Bag
AcqMethodFile TO15_SCNV6.M
Acq Time 1/4/23 11:43 AM
InstrumentName Xavier

DataPathName N:\GCMS\2023\Q1\Xavier\Data\Jan23\X010323A TICs
SampleType Sample
AcqMethodPath
Operator TDD
Dilution 1



Component Table

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
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Operator's Assessments

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
	2-chloro-1,3-butadiene; (chloroprene)	126-99-8					ND	
	Isopropyl ether; Diisopropyl ether	108-20-3					ND	
	2-Ethoxy-2-methylpropane; Ethyl tert-butyl ether; ETBE	637-92-3					ND	
	2-Methoxy-2-methylbutane; tert-amyl methyl ether	994-05-8					ND	
	2-Methyl-2-propanol; tert-butyl alcohol; TBA	75-65-0					ND	
	sec-Butylbenzene; 2-Phenylbutane	135-98-8					ND	
	tert-Butylbenzene	98-06-6					ND	
	2-Isopropyltoluene; o-Cymene	527-84-4					ND	
	n-Butylbenzene	104-51-8					ND	

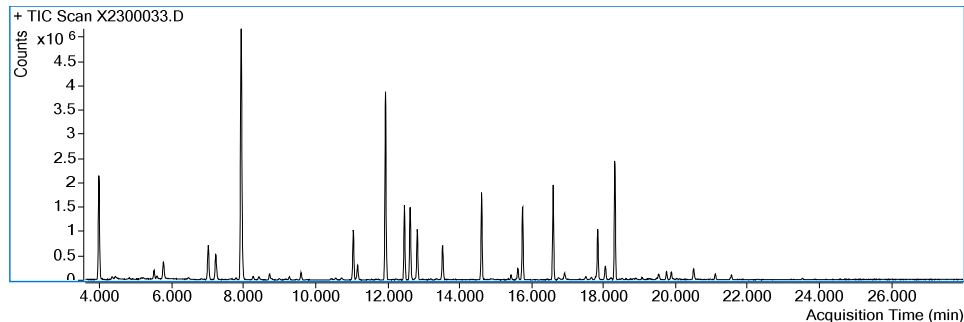
Internal Standards

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
11.04336667	Methane, bromochloro-	74-97-5	CH2BrCl	<input checked="" type="checkbox"/>	2479063	98.5	5.21	<input checked="" type="checkbox"/>
12.46761667	Benzene, 1,4-difluoro-	540-36-3	C6H4F2	<input checked="" type="checkbox"/>	3489143	98.4	5.16	<input checked="" type="checkbox"/>
16.5992	Chlorobenzene-d5	3114-55-4	C6D5Cl	<input checked="" type="checkbox"/>	4380448	94.5	4.92	<input checked="" type="checkbox"/>

Unknown Analysis Report for Target Hits

DataFileName X2300033.D
SampleName 1222-184.East Primary R3.Bag
AcqMethodFile TO15_SCNV6.M
Acq Time 1/4/23 12:37 PM
InstrumentName Xavier

DataPathName N:\GCMS\2023\Q1\Xavier\Data\Jan23\X010323A TICs
SampleType Sample
AcqMethodPath
Operator TDD
Dilution 1



Component Table

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
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Operator's Assessments

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
	2-chloro-1,3-butadiene; (chloroprene)	126-99-8					ND	
	Isopropyl ether; Diisopropyl ether	108-20-3					ND	
	2-Ethoxy-2-methylpropane; Ethyl tert-butyl ether; ETBE	637-92-3					ND	
	2-Methoxy-2-methylbutane; tert-amyl methyl ether	994-05-8					ND	
	2-Methyl-2-propanol; tert-butyl alcohol; TBA	75-65-0					ND	
	sec-Butylbenzene; 2-Phenylbutane	135-98-8					ND	
	tert-Butylbenzene	98-06-6					ND	
	2-Isopropyltoluene; o-Cymene	527-84-4					ND	
	n-Butylbenzene	104-51-8					ND	

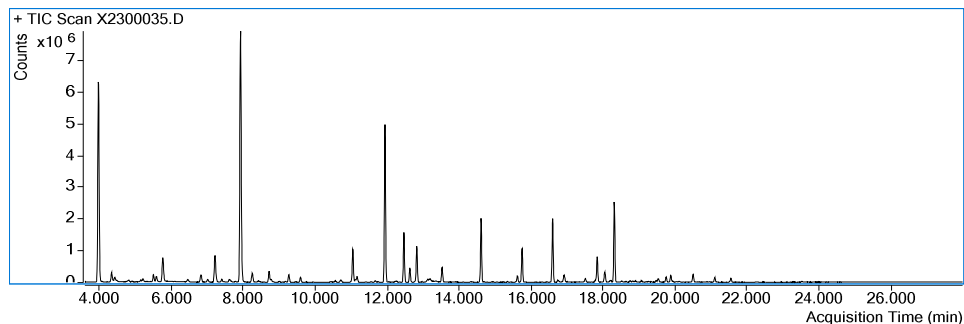
Internal Standards

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
11.04338333	Methane, bromochloro-	74-97-5	CH2BrCl	<input checked="" type="checkbox"/>	2483694	98.4	5.21	<input checked="" type="checkbox"/>
12.46763333	Benzene, 1,4-difluoro-	540-36-3	C6H4F2	<input checked="" type="checkbox"/>	3474896	98.3	5.16	<input checked="" type="checkbox"/>
16.5992	Chlorobenzene-d5	3114-55-4	C6D5Cl	<input checked="" type="checkbox"/>	4385925	94.7	4.92	<input checked="" type="checkbox"/>

Unknown Analysis Report for Target Hits

DataFileName X2300035.D
SampleName 1222-184.West Primary R1.Bag
AcqMethodFile TO15_SCNV6.M
Acq Time 1/4/23 2:26 PM
InstrumentName Xavier

DataPathName N:\GCMS\2023\Q1\Xavier\Data\Jan23\X010323A TICs
SampleType Sample
AcqMethodPath
Operator TDD
Dilution 1



Component Table

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
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Operator's Assessments

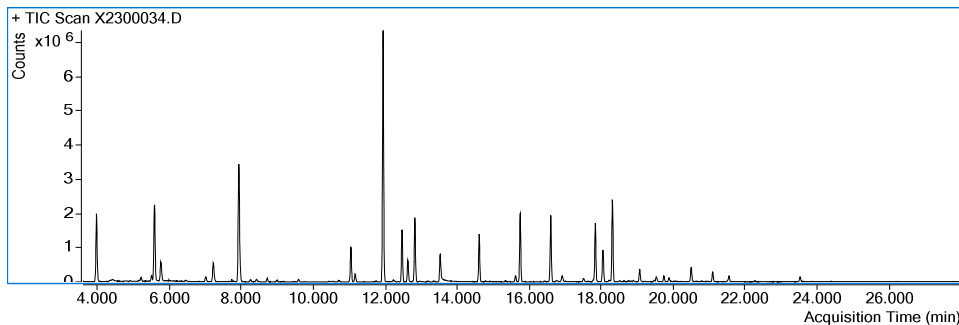
Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
	2-chloro-1,3-butadiene; (chloroprene)	126-99-8					ND	
	Isopropyl ether; Diisopropyl ether	108-20-3					ND	
	2-Ethoxy-2-methylpropane; Ethyl tert-butyl ether; ETBE	637-92-3					ND	
	2-Methoxy-2-methylbutane; tert-amyl methyl ether	994-05-8					ND	
	2-Methyl-2-propanol; tert-butyl alcohol; TBA	75-65-0					ND	
	sec-Butylbenzene; 2-Phenylbutane	135-98-8					ND	
	tert-Butylbenzene	98-06-6					ND	
	2-Isopropyltoluene; o-Cymene	527-84-4					ND	
	n-Butylbenzene	104-51-8					ND	

Internal Standards

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
11.04313333	Methane, bromochloro-	74-97-5	CH2BrCl	<input checked="" type="checkbox"/>	2577057	98.4	5.21	<input checked="" type="checkbox"/>
12.4674	Benzene, 1,4-difluoro-	540-36-3	C6H4F2	<input checked="" type="checkbox"/>	3566992	98.3	5.16	<input checked="" type="checkbox"/>
16.59896667	Chlorobenzene-d5	3114-55-4	C6D5Cl	<input checked="" type="checkbox"/>	4479483	94.6	4.92	<input checked="" type="checkbox"/>

Unknown Analysis Report for Target Hits

DataFileName	X2300034.D	DataPathName	N:\GCMS\2023\Q1\Xavier\Data\Jan23\X010323A TICs
SampleName	1222-184.West Primary R2.Bag	SampleType	Sample
AcqMethodFile	TO15_SCNV6.M	AcqMethodPath	
Acq Time	1/4/23 1:32 PM	Operator	TDD
InstrumentName	Xavier	Dilution	1



Component Table

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
8.992866667	2-Methyl-2-propanol; tert-butyl alcohol; TBA	75-65-0	C4H10O	<input checked="" type="checkbox"/>	136199	82.8	0.288	

Operator's Assessments

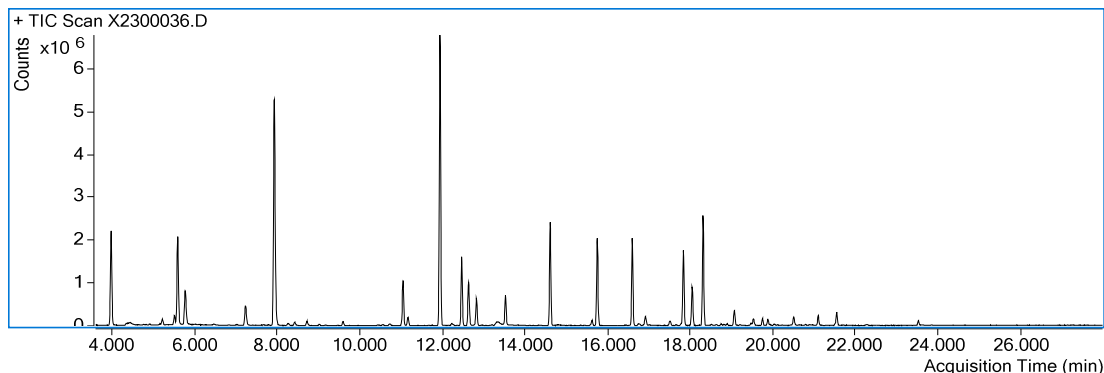
Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
	2-chloro-1,3-butadiene; (chloroprene)	126-99-8					ND	
	Isopropyl ether; Diisopropyl ether	108-20-3					ND	
	2-Ethoxy-2-methylpropane; Ethyl tert-butyl ether; ETBE	637-92-3					ND	
	2-Methoxy-2-methylbutane; tert-amyl methyl ether	994-05-8					ND	
	sec-Butylbenzene; 2-Phenylbutane	135-98-8					ND	
	tert-Butylbenzene	98-06-6					ND	
	2-Isopropyltoluene; o-Cymene	527-84-4					ND	
	n-Butylbenzene	104-51-8					ND	

Internal Standards

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	(ppb)	ISTD
11.0433	Methane, bromochloro-	74-97-5	CH2BrCl	<input checked="" type="checkbox"/>	2460029	98.4	5.21	<input checked="" type="checkbox"/>
12.46756667	Benzene, 1,4-difluoro-	540-36-3	C6H4F2	<input checked="" type="checkbox"/>	3464328	98.4	5.16	<input checked="" type="checkbox"/>
16.59913333	Chlorobenzene-d5	3114-55-4	C6D5Cl	<input checked="" type="checkbox"/>	4395433	94.5	4.92	<input checked="" type="checkbox"/>

Unknown Analysis Report for Target Hits

DataFileName	X2300036.D	DataPathName	N:\GCMS\2023\Q1\Xavier\Data\Jan23\X010323A TICs
SampleName	1222-184.West Primary R3.Bag	SampleType	Sample
AcqMethodFile	TO15_SCNV6.M	AcqMethodPath	
Acq Time	1/4/23 3:23 PM	Operator	TDD
InstrumentName	Xavier	Dilution	1



Component Table

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
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Operator's Assessments

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	Est. Conc (ppb)	ISTD
	(chloroprene)	126-99-8					ND	
	Isopropyl ether; Diisopropyl ether	108-20-3					ND	
	tert-butyl ether; ETBE	637-92-3					ND	
	amyl methyl ether	994-05-8					ND	
	alcohol; TBA	75-65-0					ND	
	sec-Butylbenzene; 2-Phenylbutane	135-98-8					ND	
	tert-Butylbenzene	98-06-6					ND	
	2-Isopropyltoluene; o-Cymene	527-84-4					ND	
	n-Butylbenzene	104-51-8					ND	

Internal Standards

Component RT	CompoundName	CAS #	Formula	Best Hit	Area	Match Score	(ppb)	ISTD
11.04315	Methane, bromochloro-	74-97-5	CH2BrCl	<input checked="" type="checkbox"/>	2577450	98.5	5.21	<input checked="" type="checkbox"/>
12.46741667	Benzene, 1,4-difluoro-	540-36-3	C6H4F2	<input checked="" type="checkbox"/>	3613185	98.4	5.16	<input checked="" type="checkbox"/>
16.59898333	Chlorobenzene-d5	3114-55-4	C6D5Cl	<input checked="" type="checkbox"/>	4575144	94.4	4.92	<input checked="" type="checkbox"/>

Lab QC

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name 1222-184.East Primary R1.LD
Sample Info. 1222-184; *10=50mL load; MP2
Sampling Date 2022-12-28 10:00
Received Date 2022-12-28 00:00
Sample Type LabDup
Batch Xavier_X010423B.v1
Data File X2300044.D
Dilution 10.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 22:00
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID 1222-184.East Primary R1.LD

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Dup Diff (%)	Flags
Acetone	49.4	0.401	0.350	119	0.968	0.845	4.1	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	885,702	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_Humid Blank #0702
Sample Info. 500mL Load; Can #0702
Sample Type Blank
Batch Xavier_X010323C.v1
Data File X2300014.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 19:42
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID X010323A_Humid Blank #0702

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Propylene	ND	0.0386	0.0350	ND	0.0676	0.0612	pass
Freon 12 (CCl2F2)	ND	0.0392	0.0350	ND	0.197	0.176	pass
Freon 114 (C2Cl2F4)	ND	0.401	0.0350	ND	2.85	0.249	pass
Chloromethane	ND	0.0396	0.0350	ND	0.0830	0.0735	pass
Chloroethene (Vinyl chloride)	ND	0.0400	0.0350	ND	0.104	0.0909	pass
1,3-Butadiene	ND	0.0389	0.0350	ND	0.0875	0.0787	pass
Bromomethane	ND	0.0392	0.0350	ND	0.155	0.138	pass
Chloroethane	ND	0.0406	0.0350	ND	0.109	0.0939	pass
Bromoethene (Vinyl bromide)	ND	0.0391	0.0350	ND	0.174	0.156	pass
Freon 11 (CCl3F)	ND	0.0422	0.0350	ND	0.241	0.200	pass
Ethanol	0.0782	0.0396	0.0400	0.150	0.0759	0.0766	pass
Acrolein	ND	0.0394	0.0350	ND	0.0918	0.0816	pass
Freon 113 (C2Cl3F3)	ND	0.0406	0.0350	ND	0.316	0.273	pass
1,1-Dichloroethene	ND	0.0402	0.0350	ND	0.162	0.141	pass
Acetone	0.0808	0.0401	0.0350	0.195	0.0968	0.0845	pass
Carbon disulfide	ND	0.0399	0.0350	ND	0.126	0.111	pass
Isopropyl alcohol	ND	0.0399	0.0350	ND	0.0996	0.0874	pass
Allyl chloride (3-chloropropene)	ND	0.0432	0.0350	ND	0.137	0.111	pass
Acetonitrile	ND	0.0399	0.0350	ND	0.0681	0.0597	pass
Methylene chloride	ND	0.0410	0.0350	ND	0.145	0.124	pass
trans-1,2-Dichloroethene	ND	0.0408	0.0350	ND	0.164	0.141	pass
Methyl tert-butyl ether	ND	0.0411	0.0350	ND	0.151	0.128	pass
Acrylonitrile	ND	0.0407	0.0350	ND	0.0898	0.0772	pass
Hexane	ND	0.0406	0.0350	ND	0.146	0.125	pass
1,1-Dichloroethane	ND	0.0397	0.0350	ND	0.163	0.144	pass
Vinyl acetate	ND	0.0409	0.0350	ND	0.146	0.125	pass
cis-1,2-Dichloroethene	ND	0.0404	0.0350	ND	0.163	0.141	pass
Methyl ethyl ketone (2-Butanone)	ND	0.0414	0.0350	ND	0.124	0.105	pass
Ethyl acetate	ND	0.0399	0.0350	ND	0.146	0.128	pass
Chloroform	ND	0.0401	0.0350	ND	0.199	0.174	pass
Tetrahydrofuran	ND	0.0405	0.0350	ND	0.121	0.105	pass
1,1,1-Trichloroethane	ND	0.0404	0.0350	ND	0.224	0.194	pass
Cyclohexane	ND	0.0410	0.0350	ND	0.143	0.122	pass
Carbon tetrachloride	ND	0.0403	0.0350	ND	0.258	0.224	pass

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_Humid Blank #0702
Sample Info. 500mL Load; Can #0702
Sample Type Blank
Batch Xavier_X010323C.v1
Data File X2300014.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 19:42
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID X010323A_Humid Blank #0702

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Benzene	ND	0.0402	0.0350	ND	0.131	0.114	pass
2,2,4-trimethylpentane	ND	0.0414	0.0350	ND	0.196	0.166	pass
1,2-Dichloroethane	ND	0.0412	0.0350	ND	0.169	0.144	pass
Heptane	ND	0.0405	0.0350	ND	0.169	0.146	pass
Trichloroethene	ND	0.0404	0.0350	ND	0.221	0.191	pass
1,2-Dichloropropane	ND	0.0403	0.0350	ND	0.189	0.164	pass
Methyl methacrylate	ND	0.0419	0.0350	ND	0.174	0.146	pass
1,4-Dioxane	ND	0.0401	0.0350	ND	0.147	0.128	pass
Bromodichloromethane	ND	0.0404	0.0350	ND	0.275	0.238	pass
cis-1,3-Dichloropropene	ND	0.0397	0.0350	ND	0.183	0.161	pass
Methyl isobutyl ketone	ND	0.0416	0.0350	ND	0.173	0.146	pass
Toluene	ND	0.0407	0.0350	ND	0.156	0.134	pass
trans-1,3-Dichloropropene	ND	0.0413	0.0350	ND	0.190	0.161	pass
1,1,2-Trichloroethane	ND	0.0407	0.0350	ND	0.226	0.194	pass
Tetrachloroethene	ND	0.0409	0.0350	ND	0.282	0.241	pass
2-Hexanone (Methyl butyl ketone)	ND	0.0409	0.0350	ND	0.170	0.146	pass
Dibromochloromethane	ND	0.0403	0.0350	ND	0.349	0.303	pass
1,2-Dibromoethane	ND	0.0409	0.0350	ND	0.320	0.273	pass
Chlorobenzene	ND	0.0412	0.0350	ND	0.193	0.164	pass
Ethylbenzene	ND	0.0397	0.0350	ND	0.175	0.154	pass
1,1,1,2-Tetrachloroethane	ND	0.0403	0.0350	ND	0.281	0.244	pass
m-/p-Xylenes	ND	0.0406	0.0350	ND	0.179	0.154	pass
o-Xylene	ND	0.0401	0.0350	ND	0.177	0.154	pass
Styrene	ND	0.0392	0.0350	ND	0.170	0.152	pass
Bromoform	ND	0.0401	0.0350	ND	0.422	0.368	pass
1,1,2,2-Tetrachloroethane	ND	0.0404	0.0350	ND	0.282	0.244	pass
4-Ethyltoluene	ND	0.0407	0.0350	ND	0.203	0.175	pass
2-Chlorotoluene	ND	0.0404	0.0350	ND	0.212	0.184	pass
1,3,5-Trimethylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	pass
1,2,4-Trimethylbenzene	ND	0.0400	0.0350	ND	0.200	0.175	pass
1,3-Dichlorobenzene	ND	0.0406	0.0350	ND	0.248	0.214	pass
1,4-Dichlorobenzene	ND	0.0402	0.0350	ND	0.246	0.214	pass
Benzyl chloride	ND	0.0402	0.0350	ND	0.212	0.184	pass
1,2-Dichlorobenzene	ND	0.0405	0.0350	ND	0.248	0.214	pass

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_Humid Blank #0702
Sample Info. 500mL Load; Can #0702
Sample Type Blank
Batch Xavier_X010323C.v1
Data File X2300014.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 19:42
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID X010323A_Humid Blank #0702

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
1,2,4-Trichlorobenzene	ND	0.0398	0.0350	ND	0.301	0.264	pass
Hexachlorobutadiene	ND	0.0395	0.0350	ND	0.428	0.379	pass
Naphthalene	ND	0.0403	0.0350	ND	0.215	0.186	pass
1-Bromopropane	ND	0.0397	0.0350	ND	0.203	0.179	pass
1-Octene	ND	0.0395	0.0350	ND	0.184	0.163	pass
n-Octane	ND	0.0412	0.0350	ND	0.196	0.166	pass
Isopropylbenzene	ND	0.0406	0.0350	ND	0.203	0.175	pass
n-Propylbenzene	ND	0.0410	0.0350	ND	0.205	0.175	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	852,151	11.04	5.21	pass
1,4-Difluorobenzene (IS)	3,152,022	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,986,716	16.59	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010423A_Humid Blank #0702
Sample Info. 500mL Load; Can #0702
Sample Type Blank
Batch Xavier_X010423B.v1
Data File X2300042.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 20:27
Instrument Method TO15_SCNV6.M
Matrix Air
Analyst TDD
Instrument Xavier
Enthalpy ID X010423A_Humid Blank #0702

Target Compound	Concentration (ppbv)	RL (ppbv)	MDL (ppbv)	Concentration (ug/m³)	RL (ug/m³)	MDL (ug/m³)	Flags
Acetone	0.0851	0.0401	0.0350	0.205	0.0968	0.0845	pass
Benzene	ND	0.0402	0.0350	ND	0.131	0.114	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	925,174	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_5ppbv TO15 LCS
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QC
Batch Xavier_X010323C.v1
Data File X2300011.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 17:06
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010323A_5ppbv TO15 LCS

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Recovery (%)	Flags
Propylene	608,785	4.71	4.83	97.5	pass
Freon 12 (CCl ₂ F ₂)	1,696,453	4.54	4.90	92.8	pass
Freon 114 (C ₂ Cl ₂ F ₄)	1,918,281	4.97	5.01	99.1	pass
Chloromethane	681,684	5.07	4.95	102.5	pass
Chloroethene (Vinyl chloride)	410,743	5.18	5.00	103.6	pass
1,3-Butadiene	746,446	5.58	4.87	114.7	pass
Bromomethane	403,252	4.70	4.91	95.8	pass, m
Chloroethane	320,428	5.03	5.08	99.0	pass
Bromoethene (Vinyl bromide)	700,194	4.57	4.89	93.4	pass
Freon 11 (CCl ₃ F)	1,985,075	5.34	5.28	101.2	pass
Ethanol	286,220	3.82	4.96	77.0	pass
Acrolein	231,996	4.39	4.93	89.2	pass
Freon 113 (C ₂ Cl ₃ F ₃)	1,266,882	4.72	5.08	92.9	pass
1,1-Dichloroethene	1,143,345	4.76	5.03	94.7	pass
Acetone	1,305,627	4.73	5.01	94.4	pass
Carbon disulfide	1,801,037	4.77	4.99	95.8	pass
Isopropyl alcohol	1,315,613	4.65	4.99	93.3	pass
Allyl chloride (3-chloropropene)	251,438	4.66	5.04	92.4	pass
Acetonitrile	655,529	5.16	4.99	103.5	pass
Methylene chloride	1,001,110	4.88	5.12	95.3	pass
trans-1,2-Dichloroethene	994,729	5.08	5.10	99.6	pass
Methyl tert-butyl ether	1,622,385	4.91	5.14	95.5	pass
Acrylonitrile	519,415	4.99	5.09	98.1	pass
Hexane	1,003,728	5.06	5.08	99.6	pass
1,1-Dichloroethane	1,172,401	4.93	4.97	99.3	pass
Vinyl acetate	1,774,871	4.58	5.12	89.6	pass
cis-1,2-Dichloroethene	1,162,162	5.38	5.05	106.6	pass
Methyl ethyl ketone (2-Butanone)	291,867	4.92	5.17	95.1	pass
Ethyl acetate	291,286	5.06	4.99	101.5	pass
Chloroform	1,403,673	4.98	5.02	99.4	pass
Tetrahydrofuran	283,877	5.14	5.06	101.6	pass
1,1,1-Trichloroethane	1,401,183	4.81	5.05	95.3	pass
Cyclohexane	1,064,290	5.28	5.13	103.1	pass
Carbon tetrachloride	1,614,130	4.94	5.04	98.2	pass
Benzene	1,835,747	5.01	5.03	99.5	pass
2,2,4-trimethylpentane	3,444,521	5.34	5.17	103.3	pass

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_5ppbv TO15 LCS
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QC
Batch Xavier_X010323C.v1
Data File X2300011.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 17:06
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010323A_5ppbv TO15 LCS

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Recovery (%)	Flags
1,2-Dichloroethane	964,563	4.91	5.15	95.4	pass
Heptane	665,330	5.17	5.07	102.1	pass
Trichloroethene	1,030,355	4.76	5.06	94.1	pass
1,2-Dichloropropane	787,255	5.16	5.04	102.4	pass
Methyl methacrylate	674,987	5.26	5.24	100.5	pass
1,4-Dioxane	406,509	4.80	5.02	95.8	pass
Bromodichloromethane	1,493,249	5.03	5.05	99.7	pass
cis-1,3-Dichloropropene	1,038,797	4.68	4.97	94.2	pass
Methyl isobutyl ketone	2,197,308	5.39	5.20	103.7	pass
Toluene	2,611,760	4.57	5.09	89.7	pass
trans-1,3-Dichloropropene	1,091,553	4.20	5.16	81.4	pass
1,1,2-Trichloroethane	866,465	4.31	5.09	84.8	pass
Tetrachloroethene	1,490,516	4.49	5.12	87.8	pass
2-Hexanone (Methyl butyl ketone)	2,086,964	4.73	5.12	92.5	pass
Dibromochloromethane	1,945,747	4.61	5.04	91.5	pass
1,2-Dibromoethane	1,562,549	4.41	5.12	86.3	pass
Chlorobenzene	2,174,161	4.34	5.15	84.2	pass
Ethylbenzene	3,338,705	4.48	4.97	90.2	pass
1,1,1,2-Tetrachloroethane	1,265,045	4.28	5.04	84.9	pass
m-/p-Xylenes	2,490,643	4.42	5.07	87.1	pass
o-Xylene	2,599,180	4.42	5.01	88.3	pass
Styrene	2,026,609	4.39	4.90	89.6	pass
Bromoform	2,107,551	4.78	5.02	95.3	pass
1,1,2,2-Tetrachloroethane	2,033,477	4.54	5.06	89.8	pass
4-Ethyltoluene	4,048,159	4.80	5.09	94.3	pass
2-Chlorotoluene	3,236,992	4.64	5.05	91.9	pass
1,3,5-Trimethylbenzene	3,251,216	4.64	5.07	91.4	pass
1,2,4-Trimethylbenzene	3,198,855	4.47	5.01	89.4	pass
1,3-Dichlorobenzene	2,609,452	4.50	5.08	88.5	pass
1,4-Dichlorobenzene	2,641,048	4.47	5.03	88.9	pass, m
Benzyl chloride	2,893,087	4.65	5.03	92.5	pass
1,2-Dichlorobenzene	2,557,029	4.57	5.07	90.3	pass
1,2,4-Trichlorobenzene	2,432,895	5.04	4.98	101.1	pass
Hexachlorobutadiene	2,097,303	4.99	4.94	100.9	pass
Naphthalene	5,576,379	5.04	5.04	100.1	pass
1-Bromopropane	1,471,570	5.06	4.96	102.0	pass

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_5ppbv TO15 LCS
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QC
Batch Xavier_X010323C.v1
Data File X2300011.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 17:06
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010323A_5ppbv TO15 LCS

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Recovery (%)	Flags
1-Octene	519,332	4.44	4.94	89.9	pass
n-Octane	651,541	4.20	5.02	83.7	pass
Isopropylbenzene	3,850,735	4.51	5.08	88.8	pass
n-Propylbenzene	4,551,178	4.75	5.13	92.5	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	811,343	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,930,473	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,865,633	16.60	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_5ppbv TO15 LCS LD
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QcDup
Batch Xavier_X010323C.v1
Data File X2300012.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 17:54
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010323A_5ppbv TO15 LCS LD

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Parent Conc (ppbv)	Recovery (%)	Diff (%)	Flags
Propylene	621,290	4.77	4.83	4.71	98.8%	1.4	pass
Freon 12 (CCl2F2)	1,729,573	4.60	4.90	4.54	94.0%	1.3	pass
Freon 114 (C2Cl2F4)	1,922,784	4.94	5.01	4.97	98.7%	0.4	pass
Chloromethane	670,916	4.96	4.95	5.07	100.2%	2.3	pass
Chloroethene (Vinyl chloride)	416,685	5.22	5.00	5.18	104.4%	0.8	pass, m
1,3-Butadiene	741,158	5.51	4.87	5.58	113.2%	1.4	pass
Bromomethane	376,074	4.35	4.91	4.70	88.7%	7.6	pass, m
Chloroethane	307,461	4.79	5.08	5.03	94.3%	4.8	pass
Bromoethene (Vinyl bromide)	690,372	4.47	4.89	4.57	91.5%	2.1	pass
Freon 11 (CCl3F)	1,966,197	5.25	5.28	5.34	99.5%	1.6	pass
Ethanol	288,697	3.82	4.96	3.82	77.2%	0.2	pass
Acrolein	233,988	4.40	4.93	4.39	89.3%	0.2	pass
Freon 113 (C2Cl3F3)	1,287,905	4.76	5.08	4.72	93.8%	1.0	pass
1,1-Dichloroethene	1,182,954	4.90	5.03	4.76	97.4%	2.7	pass
Acetone	1,296,843	4.67	5.01	4.73	93.1%	1.3	pass
Carbon disulfide	1,812,406	4.77	4.99	4.77	95.7%	0.0	pass
Isopropyl alcohol	1,325,717	4.66	4.99	4.65	93.4%	0.1	pass
Allyl chloride (3-chloropropene)	259,957	4.78	5.04	4.66	94.9%	2.7	pass
Acetonitrile	679,218	5.31	4.99	5.16	106.5%	2.9	pass
Methylene chloride	1,010,277	4.89	5.12	4.88	95.6%	0.2	pass
trans-1,2-Dichloroethene	1,007,784	5.11	5.10	5.08	100.3%	0.6	pass
Methyl tert-butyl ether	1,651,564	4.96	5.14	4.91	96.6%	1.1	pass
Acrylonitrile	504,575	4.82	5.09	4.99	94.6%	3.6	pass
Hexane	1,021,973	5.12	5.08	5.06	100.8%	1.1	pass
1,1-Dichloroethane	1,201,388	5.02	4.97	4.93	101.0%	1.8	pass
Vinyl acetate	1,812,019	4.65	5.12	4.58	90.9%	1.4	pass, m
cis-1,2-Dichloroethene	1,184,953	5.45	5.05	5.38	107.9%	1.3	pass
Methyl ethyl ketone (2-Butanone)	295,174	4.94	5.17	4.92	95.5%	0.5	pass
Ethyl acetate	288,222	4.98	4.99	5.06	99.8%	1.7	pass
Chloroform	1,432,055	5.05	5.02	4.98	100.7%	1.3	pass
Tetrahydrofuran	292,245	5.26	5.06	5.14	103.9%	2.2	pass
1,1,1-Trichloroethane	1,439,594	4.91	5.05	4.81	97.3%	2.0	pass
Cyclohexane	1,094,335	5.39	5.13	5.28	105.3%	2.1	pass
Carbon tetrachloride	1,666,995	5.07	5.04	4.94	100.7%	2.6	pass
Benzene	1,840,968	4.92	5.03	5.01	97.7%	1.8	pass
2,2,4-trimethylpentane	3,496,816	5.31	5.17	5.34	102.7%	0.6	pass

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_5ppbv TO15 LCS LD
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QcDup
Batch Xavier_X010323C.v1
Data File X2300012.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 17:54
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010323A_5ppbv TO15 LCS LD

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Parent Conc (ppbv)	Recovery (%)	Diff (%)	Flags
1,2-Dichloroethane	971,646	4.84	5.15	4.91	94.1%	1.4	pass
Heptane	666,773	5.07	5.07	5.17	100.2%	1.9	pass
Trichloroethene	1,034,946	4.68	5.06	4.76	92.5%	1.6	pass
1,2-Dichloropropane	810,263	5.20	5.04	5.16	103.2%	0.8	pass
Methyl methacrylate	683,642	5.22	5.24	5.26	99.7%	0.8	pass
1,4-Dioxane	417,568	4.83	5.02	4.80	96.4%	0.6	pass
Bromodichloromethane	1,523,945	5.03	5.05	5.03	99.6%	0.1	pass
cis-1,3-Dichloropropene	1,064,163	4.69	4.97	4.68	94.5%	0.3	pass
Methyl isobutyl ketone	2,244,313	5.39	5.20	5.39	103.8%	0.0	pass
Toluene	2,611,160	4.52	5.09	4.57	88.8%	1.1	pass
trans-1,3-Dichloropropene	1,119,678	4.26	5.16	4.20	82.7%	1.5	pass
1,1,2-Trichloroethane	868,281	4.27	5.09	4.31	84.1%	0.8	pass
Tetrachloroethene	1,503,331	4.48	5.12	4.49	87.7%	0.2	pass
2-Hexanone (Methyl butyl ketone)	2,104,363	4.72	5.12	4.73	92.3%	0.2	pass
Dibromochloromethane	1,991,084	4.67	5.04	4.61	92.7%	1.3	pass
1,2-Dibromoethane	1,592,252	4.45	5.12	4.41	87.0%	0.8	pass
Chlorobenzene	2,231,768	4.41	5.15	4.34	85.6%	1.6	pass
Ethylbenzene	3,413,586	4.53	4.97	4.48	91.2%	1.2	pass
1,1,1,2-Tetrachloroethane	1,294,621	4.33	5.04	4.28	86.0%	1.3	pass
m-/p-Xylenes	2,538,570	4.46	5.07	4.42	87.9%	0.9	pass
o-Xylene	2,626,435	4.42	5.01	4.42	88.3%	0.0	pass
Styrene	2,057,438	4.41	4.90	4.39	90.0%	0.5	pass
Bromoform	2,147,212	4.82	5.02	4.78	96.1%	0.8	pass
1,1,2,2-Tetrachloroethane	2,049,181	4.53	5.06	4.54	89.5%	0.3	pass
4-Ethyltoluene	4,052,931	4.75	5.09	4.80	93.4%	0.9	pass, m
2-Chlorotoluene	3,316,254	4.70	5.05	4.64	93.2%	1.4	pass
1,3,5-Trimethylbenzene	3,284,990	4.64	5.07	4.64	91.4%	0.0	pass
1,2,4-Trimethylbenzene	3,226,943	4.47	5.01	4.47	89.2%	0.2	pass
1,3-Dichlorobenzene	2,686,427	4.58	5.08	4.50	90.2%	1.9	pass, m
1,4-Dichlorobenzene	2,701,063	4.52	5.03	4.47	90.0%	1.2	pass, m
Benzyl chloride	2,928,914	4.66	5.03	4.65	92.6%	0.2	pass
1,2-Dichlorobenzene	2,582,294	4.57	5.07	4.57	90.3%	0.1	pass
1,2,4-Trichlorobenzene	2,499,295	5.12	4.98	5.04	102.8%	1.7	pass
Hexachlorobutadiene	2,124,128	5.00	4.94	4.99	101.2%	0.2	pass
Naphthalene	5,710,346	5.11	5.04	5.04	101.5%	1.3	pass
1-Bromopropane	1,498,921	5.12	4.96	5.06	103.2%	1.2	pass

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010323A_5ppbv TO15 LCS LD
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QcDup
Batch Xavier_X010323C.v1
Data File X2300012.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-03 17:54
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010323A_5ppbv TO15 LCS LD

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Parent Conc (ppbv)	Recovery (%)	Diff (%)	Flags
1-Octene	531,326	4.49	4.94	4.44	91.0%	1.2	pass
n-Octane	667,116	4.25	5.02	4.20	84.8%	1.3	pass
Isopropylbenzene	3,912,714	4.54	5.08	4.51	89.3%	0.6	pass
n-Propylbenzene	4,620,860	4.77	5.13	4.75	93.0%	0.5	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	816,802	11.04	5.21	pass
1,4-Difluorobenzene (IS)	2,992,219	12.46	5.16	pass
Chlorobenzene-d5 (IS)	2,895,442	16.60	4.92	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010423A_5ppbv TO15 LCS
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QC
Batch Xavier_X010423B.v1
Data File X2300039.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 17:51
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010423A_5ppbv TO15 LCS

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Recovery (%)	Flags
Acetone	1,521,799	4.87	5.01	97.3	pass
Benzene	2,097,861	4.95	5.03	98.5	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	917,936	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Enthalpy Analytical

Job No.: 1222-184-1 EPA Method TO-15 Analysis + TICs Bag Analysis -- Runs
Alliance Source Testing, LLC- Pittsburgh 22-3353 ICR U.S. Steel-Clairton, PA

Sample Name X010423A_5ppbv TO15 LCS LD
Sample Info. 125mL load; Can #2052; GCMSPrepPg1199
Sample Type QcDup
Batch Xavier_X010423B.v1
Data File X2300040.D
Dilution 1.000
Pressurization Factor 1.000
Acquisition Date 2023-01-04 18:39
Instrument Method TO15_SCNV6.M
Matrix Air
Enthalpy ID X010423A_5ppbv TO15 LCS LD

Target Compound	Response	Concentration (ppbv)	Expected Conc (ppbv)	Parent Conc (ppbv)	Recovery (%)	Diff (%)	Flags
Acetone	1,512,345	4.82	5.01	4.87	96.2%	1.1	pass
Benzene	2,107,623	4.95	5.03	4.95	98.3%	0.2	pass

Compound	Response	Retention Time (min)	Concentration (ppbv)	Flag
Bromochloromethane (IS)	922,280	11.04	5.21	pass

(ND) = Not Detected

(J) = Below Calibration Range, (E) = Above Calibration Range, (m) = Manual Integration

IS Acceptance Criteria: RT +/- 20 sec, Response +/- 40%

Narrative Summary

Enthalpy Analytical Narrative Summary

Company	Alliance Source Testing LLC - Pittsburgh
Analyst	TDD
Parameters	EPA Method TO-15 & TICs

Client #	22-3353 U.S. Steel – Clairton, PA
Job #	1222-184
# Samples	6 Tedlar Bags

Custody

Alyssa Miller received 3 samples (and three back-up samples) on 12/28/22 and 3 samples (and three back-up samples) on 12/29/22 after being relinquished by Alliance Source Testing, LLC – Pittsburgh. The samples were received at ambient temperature and in good condition with the exception of sample **West Primary Run 1 Backup** which had extremely low volume.

Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.

Analysis

The samples were analyzed for the TO-15 target compound list and a client specified Tentatively Identified Compounds (TICs) list using the analytical procedures in EPA Method TO-15, *Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*.

The samples were analyzed undiluted and at a 10-fold analytical dilution to bring all compounds within the calibrated range of the instrument. Dilution factors are displayed in the sample header information.

The Agilent Technologies Model 6890N, Gas Chromatograph "Xavier" (S/N US10721018) equipped with a 5975C VL Mass Selective Detector (S/N US71215962) was used for this analysis. All samples and standards were introduced directly to the analyzer using an Entech 7200 Preconcentrator.

Calibration

The associated BFB tunes met method acceptance criteria.

The initial calibration (**X100722A-TO15**) met the 30% RSD criteria. The initial calibration verification (ICV) met the 30% recovery criteria. The continuing calibration (CCV) met the 30% difference criteria. Full calibration data is available upon request.

Chromatographic Conditions

The acquisition method (**TO15-SCNv6.M**) is not included in this report but may be made available upon request.



Enthalpy Analytical Narrative Summary (continued)

QC Notes

All internal standard area responses and retention time criteria were met for these analyses.

The Laboratory Duplicates (LD) associated with this sample data met the 25% difference acceptance criteria for all compounds. The LCS was also analyzed in duplicate and met the 25% difference acceptance criteria for all compounds.

There were no target analytes detected in the associated humid blank at concentrations greater than 3 times the MDL.

The Laboratory Control Standards (LCS) associated with this sample data met 70-130% recovery criteria.

The samples were analyzed within the 30-day holding time required by the method.

Reporting Notes

All samples were manually searched for the presence of 2-chloro-1,3-butadiene (chloroprene) CAS #126-99-8, isopropyl ether (diisopropyl ether) CAS #108-20-3, 2-ethoxy-2-methylpropane (ethyl tert-butyl ether, ETB) CAS #637-92-3, 2-methoxy-2-methylbutane (tert-amyl methyl ether) CAS #994-05-8, 2-methyl-2-propanol (tert-butyl alcohol, TBA) CAS #75-65-0, sec-butylbenzene (2-phenylbutane) CAS #135-98-8, tert-butylbenzene CAS #98-06-6, 2-isopropyltoluene (o-cymene) CAS #527-84-4 and n-butylbenzene CAS #104-51-8. All compounds were ND in all samples with the exception of tert-butyl alcohol being detected in sample **West Primary R2** at 0.288ppbv.

On the Tentatively Identified Compounds (TICs) result page, the top part of the page details peaks that had sufficiently good spectral matches to be identified by the IUPAC name and CAS#.

The bottom part of the page details peaks whose spectra were not good enough to give positive identification using the instrument software. Labeled as "Operator's Assessments", the section may include both more-generic compound identifications and more-specific compound identifications based on analyst's experience and historical instrument response. Compounds with poor spectral match are identified as "unknown".

Enthalpy Analytical Narrative Summary (continued)

Reporting Notes (continued)

TICs are searched against an Agilent Technologies G1701DA Version D.00.00.38 compound library. TIC concentrations are calculated using an assumed response factor of 1 for all compounds and responses from the Total Ion Chromatogram.

TIC identification is based upon visual comparison of the sample spectra and best-quality library searches. Relative intensities of major ions in the reference spectrum are compared to those in the sample spectrum. Intensities of the major ions should be within 20% of those in the reference spectrum. In some instances a background subtraction may have been performed on the sample spectrum to remove ions that may be present due to contamination or co-eluting peaks. Therefore, ions present in the sample spectrum may not be present in the reference spectrum.

These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above.

The results presented in this report are representative of the samples as provided to the laboratory.

General Reporting Notes

The following are general reporting notes that are applicable to all Enthalpy Analytical, LLC data reports, unless specifically noted otherwise.

- Any analysis which refers to the method as “**Type**” represents a planned deviation from the reference method. For instance a Hydrogen Sulfide assay from a Tedlar bag would be labeled as “EPA Method 16-Type” because Tedlar bags are not mentioned as one of the collection options in EPA Method 16.
- The acronym **MDL** represents the Minimum Detection Limit. Below this value the laboratory cannot determine the presence of the analyte of interest reliably.
- The acronym **LOQ** represents the Limit of Quantification. Below this value the laboratory cannot quantitate the analyte of interest within the criteria of the method.
- The acronym **ND** following a value indicates a non-detect or analytical result below the MDL.
- The letter **J** in the Qualifier or Flag column in the results indicates that the value is between the MDL and the LOQ. The laboratory can positively identify the analyte of interest as present, but the value should be considered an estimate.
- The letter **E** in the Qualifier or Flag column indicates an analytical result exceeding 100% of the highest calibration point. The associated value should be considered as an estimate.
- Sample results are presented ‘as measured’ for single injection methodologies, or an average value if multiple injections are made. If all injections are below the MDL, the sample is considered non-detect and the ND value is presented. If one, but not all, are below the MDL, the MDL value is used for any injections that are below the MDL. For example, if the MDL is 0.500 and LOQ is 1.00, and the instrument measures 0.355, 0.620, and 0.442 - the result reported is the average of 0.500, 0.620, and 0.500 - - - i.e. 0.540 with a J flag.
- When a spike recovery (Bag Spike, Collocated Spike Train, or liquid matrix spike) is being calculated, the native (unspiked) sample result is used in the calculations, as long as the value is above the MDL. If a sample is ND, then 0 is used as the native amount (not the MDL value).
- The acronym **DF** represents Dilution Factor. This number represents dilution of the sample during the preparation and/or analysis process. The analytical result taken from a laboratory instrument is multiplied by the DF to determine the final undiluted sample results.
- The addition of **MS** to the Sample ID represents a Matrix Spike. An aliquot of an actual sample is spiked with a known amount of analyte so that a percent recovery value can be determined. The MS analysis indicates what effect the sample matrix may have on the target analyte, i.e. whether or not anything in the sample matrix interferes with the analysis of the analyte(s).



General Reporting Notes

(continued)

- The addition of **MSD** to the Sample ID represents a Matrix Spike Duplicate. Prepared in the same manner as a MS, the use of duplicate matrix spikes allows further confirmation of laboratory quality by showing the consistency of results gained by performing the same steps multiple times.
- The addition of **LD** to the Sample ID represents a Laboratory Duplicate. The analyst prepares an additional aliquot of sample for testing and the results of the duplicate analysis are compared to the initial result. The result should have a difference value of within 10% of the initial result (if the results of the original analysis are greater than the LOQ).
- The addition of **AD** to the Sample ID represents an Alternate Dilution. The analyst prepares an additional aliquot at a different dilution factor (usually double the initial factor). This analysis helps confirm that no additional compound is present and coeluting or sharing absorbance with the analyte of interest, as they would have a different response/absorbance than the analyte of interest.
- The Sample ID **LCS** represents a Laboratory Control Sample. Clean matrix, similar to the client sample matrix, prepared and analyzed by the laboratory using the same reagents, spiking standards and procedures used for the client samples. The LCS is used to assess the control of the laboratory's analytical system. Whenever spikes are prepared for our client projects, two spikes are retained as LCSs. The LCSs are labeled with the associated project number and kept in-house at the appropriate temperature conditions. When the project samples are received for analysis, the LCSs are analyzed to confirm that the analyte could be recovered from the media, separate from the samples which were used on the project and which may have been affected by source matrix, sample collection, and/or sample transport.
- **Significant Figures:** Where the reported value is much greater than unity (1.00) in the units expressed, the number is rounded to a whole number of units, rather than to 3 significant figures. For example, a value of 10,456.45 ug catch is rounded to 10,456 ug. There are five significant digits displayed, but no confidence should be placed on more than two significant digits. In the case of small numbers, generally 3 significant figures are presented, but still only 2 should be used with confidence. Many neat materials are only certified to 3 digits, and as the mathematically correct final result is always 1 digit less than all its pre-cursors - 2 significant figures are what are most defensible.
- **Manual Integration:** The data systems used for processing will flag manually integrated peaks with an "M". There are several reasons a peak may be manually integrated. These reasons will be identified by the following two letter designations on sample chromatograms, if provided in the report. The peak was *not integrated* by the software "**NI**", the peak was *integrated incorrectly* by the software "**II**" or the *wrong peak* was integrated by the software "**WP**". These codes will accompany the analyst's manual integration stamp placed next to the compound name on the chromatogram.



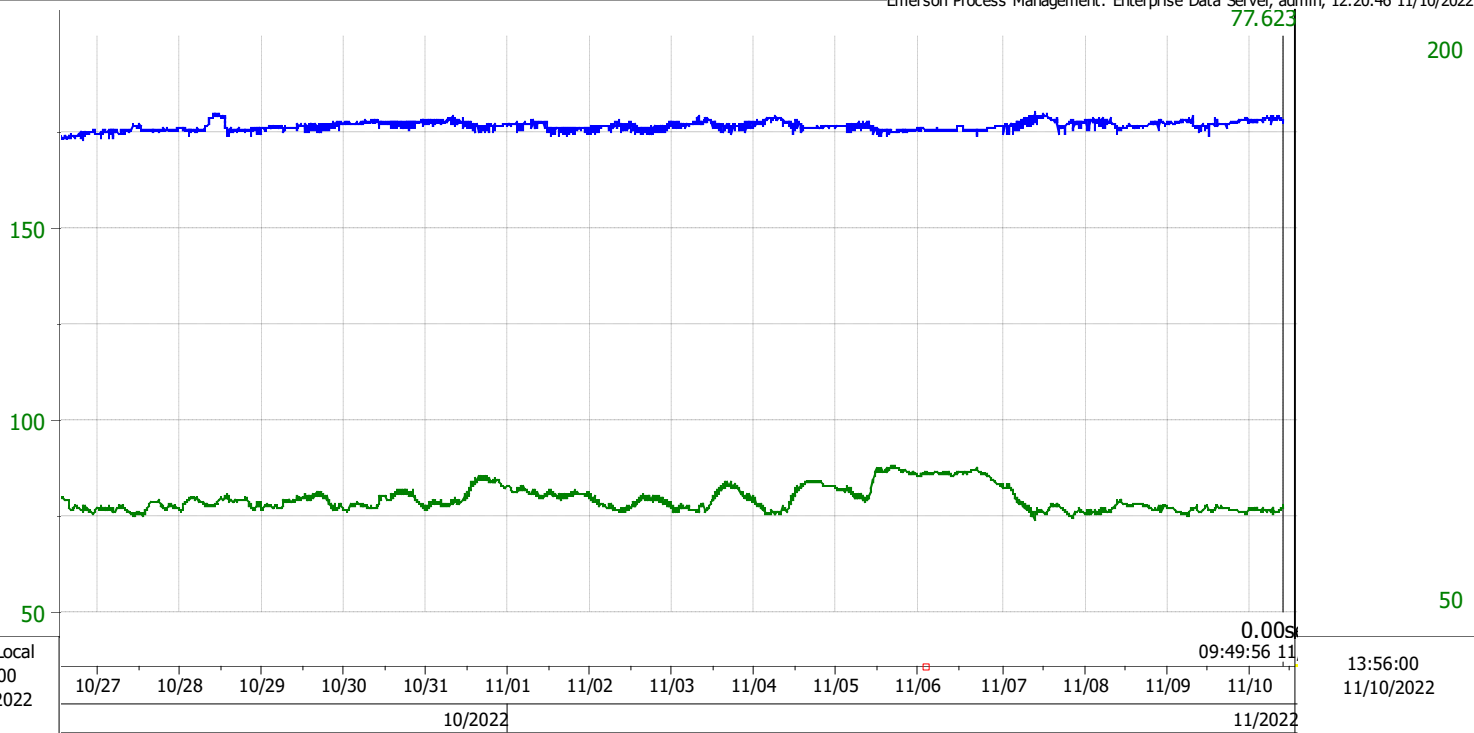
Sample Custody



**This Is The Last Page
Of This Report.**

Appendix C

	EAST	WEST	TOTAL	
P_0	15.3	15.3	15.3048	PSIG
C_v	30470	33232	-	
P_1	15.0	14.0	-	PSIG
ΔP	0.3	1.3	-	PSID
q	16823	37961	54784	GPM



IESS	Description	Unit	IDCS	Source	Avg	Max	Min	Hair	Show alias
TE0056.UNIT1@OVATION1	CTW RETURN TO TOWER TEMP	DEGF	TE0056	unit1	79.34053G	87.8837	73.8595	77.62357G	
PT0014.UNIT1@OVATION1	CTW HEADER PRESS	PSIG	PT0014	unit1	101.347G	104.07	98.2104	102.2096G	

BRANCH DESCRIPTION

Branch Number: 1
Branch Name: East Return Piping

Created By: J Hosfield
Date: 2022-11-10

ONE-PAGE SUMMARY

Branch Number: 1
Branch Name: East Return Piping

FLUID DESCRIPTION

Asmpt: Incompressible
Fluid: Water
Temperature: 79.30 Fahrenheit
Pressure: 29.60 PSIA
Density: 1.00 grams/CC = 62.18 lb/cu ft
Specific Volume: 0.016 cu ft/lb
Specific Gravity: 0.996
Abs. Viscosity: 0.868 centipoise
Kin. Viscosity: 0.872 centistokes

HARDWARE DESCRIPTION

Number of Components: 7
Branch Inlet Diameter: 47.000 inches
Branch Outlet Diameter: 34.500 inches

Branch Elevational Change: 0.0 feet
Branch K Factor: 2.24

FLOW DESCRIPTION

Mass Flow Rate: 8,578,821.9 lb/hr
Volumetric Flow Rate: 17,201.3 US gal/min
Velocity: 3.2 ft/sec (FPS)

Differential Pressure: 0.30 PSID
Head Loss: 0.35 feet
Head Loss: 0.15 PSID

FLUID DESCRIPTION - SUMMARY

Fluid: Water
Temperature: 79.30 Fahrenheit
Pressure: 29.60 PSIA
Incompressible - No Specific Location

HARDWARE DESCRIPTION - TABLE

Branch Number: 1
 Branch Name: East Return Piping
 Number of Components: 7

Units as follows:

Diameter: inches
 Equivalent Length: feet
 Inlet Pressure (Pin): PSIA
 Differential Pressure (DP): PSID
 Head Loss (HL): feet
 Inlet Velocity: ft/sec (FPS)

Component Name	In Dia Pin	Out Dia DP	Eq Lnth HL	K Factor In Vel
INLET	47.000 29.60		870.79 0.35	2.237 3.181
Tee, 47.000" Thru Run	47.000 29.60	47.000 0.01	78.33 0.03	0.201 3.181
Pipe, 47.000" custom, 9.25 feet	47.000 29.59	47.000 0.00	9.25 0.00	0.028 3.181
Reducer, 47.000 X 36" X 28	47.000 29.59	35.000 0.17	109.42 0.04	0.281 3.181
Pipe, NPS 36, sched 20, 45.50 feet	35.000 29.42	35.000 0.04	45.50 0.10	0.187 5.736
Gate valve	34.500 29.38	34.500 0.02	23.00 0.05	0.085 5.904
Elbow, 36" 90 LR flg/BW	34.500 29.36	34.500 0.03	40.25 0.08	0.149 5.904
Pipe, NPS 36, sched 40, 21.93 feet	34.500 29.32	34.500 0.02	21.93 0.05	0.091 5.904
OUTLET		34.500 29.30	870.79	2.237 5.904

FLOW DESCRIPTION - SUMMARY

Mass Flow Rate: 8,578,821.9 lb/hr

Inlet Vol. Flow Rate: 17,201.3 US gal/min

Inlet Velocity: 3.2 ft/sec (FPS)

Outlet Vol. Flow Rate: 17,201.3 US gal/min

Outlet Velocity: 5.9 ft/sec (FPS)

Differential Pressure: 0.30 PSID

Head Loss: 0.35 feet

Head Loss: 0.15 PSID

BRANCH DESCRIPTION

Branch Number: 2
Branch Name: West Return Piping

Created By: J Hosfield
Date: 2022-11-10

ONE-PAGE SUMMARY

Branch Number: 2
Branch Name: West Return Piping

FLUID DESCRIPTION

Asmpt: Incompressible
Fluid: Water
Temperature: 79.30 Fahrenheit
Pressure: 29.60 PSIA
Density: 1.00 grams/CC = 62.18 lb/cu ft
Specific Volume: 0.016 cu ft/lb
Specific Gravity: 0.996
Abs. Viscosity: 0.868 centipoise
Kin. Viscosity: 0.872 centistokes

HARDWARE DESCRIPTION

Number of Components: 3
Branch Inlet Diameter: 47.000 inches
Branch Outlet Diameter: 35.000 inches

Branch Elevational Change: 0.0 feet
Branch K Factor: 1.68

FLOW DESCRIPTION

Mass Flow Rate: 18,958,010.9 lb/hr
Volumetric Flow Rate: 38,012.5 US gal/min
Velocity: 7.0 ft/sec (FPS)

Differential Pressure: 1.30 PSID
Head Loss: 1.29 feet
Head Loss: 0.56 PSID

FLUID DESCRIPTION - SUMMARY

Fluid: Water
Temperature: 79.30 Fahrenheit
Pressure: 29.60 PSIA
Incompressible - No Specific Location

HARDWARE DESCRIPTION - TABLE

Branch Number: 2
 Branch Name: West Return Piping
 Number of Components: 3

Units as follows:

Diameter: inches
 Equivalent Length: feet
 Inlet Pressure (Pin): PSIA
 Differential Pressure (DP): PSID
 Head Loss (HL): feet
 Inlet Velocity: ft/sec (FPS)

Component Name	In Dia Pin	Out Dia DP	Eq Lnth HL	K Factor In Vel
INLET	47.000 29.60	1.30	655.46 1.29	1.684 7.029
Tee, 47.000" Thru Branch	47.000 29.60	47.000 0.20	235.00 0.46	0.604 7.029
Reducer, 47.000 X 36" sud	47.000 29.40	35.000 0.99	281.97 0.56	0.724 7.029
Pipe, NPS 36, sched 20, 28.21 feet	35.000 28.42	35.000 0.12	28.21 0.27	0.109 12.676
OUTLET	28.30	35.000	655.46	1.684 12.676

FLOW DESCRIPTION - SUMMARY

Mass Flow Rate: 18,958,010.9 lb/hr

Inlet Vol. Flow Rate: 38,012.5 US gal/min

Inlet Velocity: 7.0 ft/sec (FPS)

Outlet Vol. Flow Rate: 38,012.5 US gal/min

Outlet Velocity: 12.7 ft/sec (FPS)

Differential Pressure: 1.30 PSID

Head Loss: 1.29 feet

Head Loss: 0.56 PSID

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