

CASE NARRATIVE

**Monthly Data Pall Life Sciences
Project: 1,4-Dioxane Remediation
Date: November 2020**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Gelman Sciences, Inc. d/b/a Pall Life Sciences (PLS) attests to the validity of the laboratory data generated by PLS's Ann Arbor, Michigan Environmental Laboratory facilities reported herein. All analyses performed by PLS's Environmental Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. PLS's Environmental group has reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

At the end of the month some of the 1,4-dioxane samples were sent to Ann Arbor Technical Services for analysis due to a reproducibility problem. The balance of samples were analyzed for 1,4-dioxane and bromate at Pall Corporation's Environmental Laboratory. All test results in this report meet all NELAP requirements for parameters for which accreditation are required or available. Any exceptions to NELAP requirements are noted in this report. All exceptions are noted per laboratory standard operating procedure based on EPA Method 1624c. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results. The odd even rule is used for rounding. Holding times were met for all samples analyzed. Proper preservation was observed on all samples unless otherwise detailed in the individual sections below.

RECEIPT/ STORAGE

The samples were received on the days noted in the report for the Month; the samples arrived in good condition, properly preserved and on ice when necessary. Samples that require 1,4-dioxane analysis are collected in hydrochloric acid (HCl)-preserved vials to a pH of ≤ 2 , with the exception of the Pall ozone treatment samples. These samples have chemicals that, when mixed with the HCl, cause interferences and trap damage. Every attempt is made to analyze these samples within 24 hours of receipt.

Samples that require Bromate analysis are collected and preserved in the laboratory with ethylene di-amine and refrigerated.

Samples that are delivered to the laboratory the same day as they are collected are likely not to have reached a fully chilled temperature. This is acceptable as long as there is evidence that chilling has begun. All samples are iced or refrigerated at 4°C ($\pm 2^\circ\text{C}$) from the time of collection until sample preparation or analysis.

1,4-Dioxane (GC-MS)

All ground water and treated water samples were analyzed for 1,4-Dioxane (GC-MS) in accordance with EPA 1624C, which has been modified to enhance detection limits. Samples that were diluted to bring them within the calibrated range of the instrument are noted with a "D" under the Qualifier Code section of the data report. Reporting limits were adjusted based on each dilution.

Reporting limit for undiluted samples is 1.0ppb (part per billion, micrograms per liter, µg/L). All quality control parameters were within the acceptance limits. All data is reported with two significant figures.

Bromate (Ion Chromatography)

All surface water and treated samples were analyzed for Bromate (Ion Chromatography) in accordance with EPA 300.1. Surrogates are added to all samples. All quality control parameters were within the acceptance limits with the balance of sample analyzed.

The reporting limit for treated samples is 5.0ppb and for surface samples is 2.0ppb. All data is reported with 2 significant figures.

Qualifiers

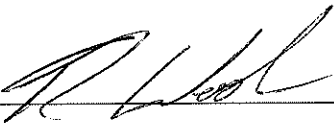
1,4-Dioxane Qualifier Codes:

<u>Qualifier Code</u>	<u>Description</u>
nd:	The compound was analyzed for, but was not detected at or above the detection limit indicated.
D:	Analyte value quantified from a dilution, reporting limit is raised to reflect dilution.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve, reported as estimate.
B:	The sample vials contained air bubbles larger than 5mm, which may affect compound results.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
M:	Matrix effects, sample required dilution.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 14 day hold time, but within 45 days.
O:	Samples analyzed in outside laboratory.
S:	Samples split with DEQ.

Bromate Qualifier Codes:

<u>Qualifier Code</u>	<u>Description</u>
nd:	The compound was analyzed for, but was not detected at or above the detection limit indicated.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 28 day hold time

Analyst: Susan E.O. Peters  Date: 12-10-20

Report Checked by: Ray Woods  Date: 12/10/20

Sample Analysis Report

November, 2020

642 South Wagner Road
Ann Arbor, MI 48103-9019 US
734.436.4025 phone

Analyst Initials: SEOP
Date: 12-10-20

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Residential Wells								
D0								
5005 Jackson Rd-11-16-20-11:26-1	16	1.0						
Extraction Wells								
C3								
DOLPH-11-06-20-08:40-1	140	5.0						D
TW-1-11-23-20-09:20-1	35	1.0						
TW-10-11-23-20-09:17-1	320	40.0						O, D
TW-14-11-23-20-09:28-1	22	1.0						
TW-20-11-06-20-08:50-1	910	10.0						D
TW-3-11-23-20-09:22-1	42	1.0						
TW-6-11-11-20-11:09-1	76	1.0						
D2								
LB-4-11-06-20-08:05-1	490	10.0						D
TW-21-11-06-20-09:05-1	300	10.0						D
TW-9-11-23-20-09:31-1	490	10.0						O, D
E								
TW-17-11-23-20-09:25-1	330	5.0						D
TW-18-11-06-20-09:40-1	270	10.0						D
TW-19-11-06-20-08:20-1	460	10.0						D
TW-23-11-06-20-08:35-1	620	10.0						D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Marshy								
PW-1-11-06-20-08:45-1	650	10.0						D
SW								
TW-22-11-06-20-08:55-1	430	10.0						D
TW-28-11-06-20-09:00-1	750	10.0						D
Monitoring Wells								
C3								
MW-1 Replacement-11-18-20-12:50-1	2500	40.0						O, D
MW-105s-11-11-20-14:02-1	370	10.0						O, D
MW-22-11-18-20-10:49-1	660	10.0						O, D
MW-2d-11-11-20-09:23-1	35	1.0						
MW-75-11-12-20-12:02-1	320	10.0						O, D
D0								
A2 Cleaning Supply-11-03-20-12:10-1	57	1.0						
MW-136i-11-30-20-13:05-1	nd	1.0						O
MW-136s-11-30-20-10:46-1	nd	1.0						O
MW-137s-11-16-20-10:09-1	nd	1.0						
MW-138i-11-13-20-12:52-1	7	1.0						O
MW-138s-11-13-20-11:41-1	nd	1.0						
MW-140s-11-24-20-13:40-1	nd	1.0						
MW-53d-11-03-20-09:30-1	nd	1.0						
MW-53i-11-03-20-11:55-1	31	1.0						
MW-53s-11-03-20-10:41-1	nd	1.0						O
D2								
175 Jackson Plaza-11-02-20-14:10-1	1000	10.0						D
HZ-S-11-23-20-09:40-1	800	20.0						O, D

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-133i-11-09-20-10:08-1	1.2	1.0						
MW-133s-11-09-20-08:50-1	1.2	1.0						
MW-134i-11-02-20-10:43-1	7.0	1.0						
MW-134s-11-02-20-11:57-1	7.8	1.0						
MW-17-11-09-20-13:03-1	290	10.0						D
MW-56s-11-20-20-14:11-1	53	1.0						
MW-62i-11-20-20-11:04-1	nd	1.0						O
MW-62s-11-20-20-12:30-1	nd	1.0						
MW-94s-11-10-20-14:10-1	770	10.0						D
E								
IW-2-11-18-20-08:25-1	1700	40.0					3000	O, D
IW-2-11-18-20-09:00-1	1600	40.0					6000	O, D
IW-2-11-18-20-10:25-1	1700	40.0					9000	O, D
IW-2-11-18-20-10:55-1	1900	40.0					12000	O, D
MW-103s-11-12-20-14:16-1	99	1.0					split with State	S
MW-105d-11-11-20-12:46-1	150	10.0						O, D
MW-112d-11-04-20-13:00-1	nd	1.0						
MW-112i-11-04-20-14:14-1	8.5	1.0						
MW-112s-11-04-20-11:43-1	1.0	1.0						
MW-115-11-05-20-11:38-1	530	10.0						D
MW-116-11-06-20-11:53-1	540	40.0						O, D
MW-133d-11-09-20-11:20-1	3.0	1.0						
MW-134d-11-02-20-09:26-1	5.5	1.0						
MW-136d-11-30-20-11:56-1	nd	1.0						O
MW-137d-11-16-20-09:00-1	nd	1.0						
MW-138d-11-13-20-10:25-1	nd	1.0						
MW-140d-11-24-20-12:29-1	nd	1.0						O

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-30d-11-10-20-11:31-1	110	5.0						D
MW-62d-11-20-20-09:49-1	nd	1.0						
MW-65d-11-19-20-14:04-1	20	1.0						
MW-65i-11-19-20-11:00-1	3.8	1.0						
MW-65s-11-19-20-12:30-1	8.2	1.0						
MW-68-11-24-20-10:56-1	nd	1.0						O
MW-72d-11-10-20-10:08-1	600	10.0						D
MW-72s-11-10-20-08:59-1	1.0	1.0						
MW-76i-11-06-20-09:09-1	69	1.0						
MW-76s-11-06-20-10:31-1	300	10.0						D
MW-83s-11-05-20-10:19-1	450	10.0						D
MW-84s-11-03-20-14:04-1	360	10.0						D
MW-94d-11-10-20-12:56-1	2.8	1.0						
MW-95-11-13-20-14:12-1	17	1.0						
MW-96-11-16-20-12:47-1	120	5.0						O
SH								
MW-25s-11-18-20-11:21-1	320	5.0						D
MW-2s-11-11-20-09:20-1	1.5	1.0						
MW-5d-11-18-20-13:43-1	5900	100.0						O, D
SW								
MW-45d-11-12-20-10:35-1	890	25.0						D
MW-45s-11-12-20-09:15-1	1.1	1.0						
MW-46-11-17-20-11:54-1	91	1.0						
MW-48-11-17-20-14:31-1	18	1.0						
MW-49-11-17-20-10:34-1	nd	1.0						
MW-57-11-16-20-14:10-1	nd	1.0						O
TW-4-11-17-20-13:12-1	43	1.0						

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Surface Water								
Not Applicable								
HC/HR-11-02-20-08:10-1			nd	2.0				
HC/HR-11-03-20-08:15-1			nd	2.0				
HC/HR-11-04-20-08:15-1			nd	2.0				
HC/HR-11-05-20-07:40-1			nd	2.0				
HC/HR-11-06-20-07:50-1			nd	2.0				
HC/HR-11-09-20-09:30-1			nd	2.0				
HC/HR-11-10-20-07:50-1			nd	2.0				
HC/HR-11-11-20-07:50-1			nd	2.0				
HC/HR-11-12-20-08:10-1			nd	2.0				
HC/HR-11-13-20-09:20-1			nd	2.0				
HC/HR-11-16-20-07:55-1			nd	2.0				
HC/HR-11-17-20-08:10-1			nd	2.0				
HC/HR-11-18-20-08:35-1			nd	2.0				
HC/HR-11-19-20-07:55-1			nd	2.0				
HC/HR-11-20-20-08:00-1			nd	2.0				
HC/HR-11-23-20-08:05-1			nd	2.0				
HC/HR-11-24-20-07:50-1			nd	2.0				
HC/HR-11-25-20-07:50-1			nd	2.0				
HC/HR-11-30-20-08:05-1			nd	2.0				
Treatment System								
OUTFALL-11-01-20-1	4.9	1.0						
OUTFALL-11-01-20-2			8.3	5.0				
OUTFALL-11-02-20-1	5.7	1.0						
OUTFALL-11-02-20-2			8.1	5.0				

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-11-03-20-1	6.0	1.0						
OUTFALL-11-03-20-2			8.6	5.0				
OUTFALL-11-04-20-1	5.8	1.0						
OUTFALL-11-04-20-2			8.0	5.0				
OUTFALL-11-05-20-1	5.2	1.0						
OUTFALL-11-05-20-2			8.3	5.0				
OUTFALL-11-08-20-1	5.5	1.0						
OUTFALL-11-08-20-2			7.2	5.0				
OUTFALL-11-09-20-1	6.0	1.0						
OUTFALL-11-09-20-2			7.9	5.0				
OUTFALL-11-10-20-1	5.6	1.0						
OUTFALL-11-10-20-2			8.2	5.0				
OUTFALL-11-11-20-1	6.4	1.0						
OUTFALL-11-11-20-2			7.6	5.0				
OUTFALL-11-12-20-01	6.3	1.0						
OUTFALL-11-12-20-02			6.6	5.0				
OUTFALL-11-15-20-1	6.2	1.0						
OUTFALL-11-15-20-2			7.7	5.0				
OUTFALL-11-16-20-1	5.1	1.0						
OUTFALL-11-16-20-2			8.2	5.0				
OUTFALL-11-17-20-1	5.7	1.0						
OUTFALL-11-17-20-2			8.0	5.0				
OUTFALL-11-18-20-1	6.1	1.0						
OUTFALL-11-18-20-2			7.4	5.0				
OUTFALL-11-19-20-1	6.3	1.0						
OUTFALL-11-19-20-2			7.5	5.0				
OUTFALL-11-22-20-1	5.2	1.0						

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-11-22-20-2			6.7	5.0				
OUTFALL-11-23-20-1	5.7	1.0						
OUTFALL-11-23-20-2			7.2	5.0				
OUTFALL-11-24-20-1	6.7	1.0						
OUTFALL-11-24-20-2			7.0	5.0				
OUTFALL-11-25-20-1	4.6	1.0						
OUTFALL-11-25-20-2			9.3	5.0				
OUTFALL-11-26-20-1	5.3	1.0						
OUTFALL-11-26-20-2			8.8	5.0				
OUTFALL-11-29-20-1	4.0	1.0						
OUTFALL-11-29-20-2			8.8	5.0				
OUTFALL-11-30-20-1	5.5	1.0						
OUTFALL-11-30-20-2			8.4	5.0				
Red Pond-11-02-20-08:35-1	360	1.0						D
Red Pond-11-09-20-09:50-1	360	10.0						D
Red Pond-11-16-20-08:30-1	380	5.0						D
Red Pond-11-23-20-08:25-1	380	10.0						D
Red Pond-11-30-20-08:30-1	390	10.0						D

PLS Qualifier Codes:

- nd: The compound was analyzed for, but was not detected at or above the detection limit indicated.
- D: Analyte value quantified from a dilution, reporting limit is raised to reflect dilution.
- H: Sample was analyzed past 45 day hold time, but within 45 days used by ATS for same method with EPA approval.
- O: Samples analyzed in outside laboratory, Ann Arbor Technical Services (ATS).



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LABORATORY OPERATIONS
CASE NARRATIVE

Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): Org_SRF_1208201
Client PO Number: 4604293919

ATS Project Number: G001-002
Report Date: 12/9/20
SRF / SDG Numbers: 1208201

Project Description: This data report contains the results of twenty-four water sample, received by ATS on 12/8/20, to be analyzed for 1,4-Dioxane.

Case Narrative Summary

This case narrative applies to the following samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 12/8/20, and associated matrix-specific QA/QC:

We certify that the sample analyses for this report have been conducted in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Samples Received 12/8/20				
MW-53s	11/18/2020	Urgent	1,4-Dioxane	Water
MW-116	11/16/2020	Urgent	1,4-Dioxane	Water
MW-1059	11/11/2020	Urgent	1,4-Dioxane	Water
MW-105s	11/11/2020	Urgent	1,4-Dioxane	Water
MW-76	11/12/2020	Urgent	1,4-Dioxane	Water
LHW-13H	11/13/2020	Urgent	1,4-Dioxane	Water
MW-89	11/16/2020	Urgent	1,4-Dioxane	Water
MW-87	11/16/2020	Urgent	1,4-Dioxane	Water
MW-2 (3000)	11/18/2020	Urgent	1,4-Dioxane	Water
MW-2 (6000)	11/18/2020	Urgent	1,4-Dioxane	Water
MW-2 (9000)	11/18/2020	Urgent	1,4-Dioxane	Water
MW-2 (12000)	11/18/2020	Urgent	1,4-Dioxane	Water
MW-22	11/18/2020	Urgent	1,4-Dioxane	Water
MW-1 REPLACEMENT	11/18/2020	Urgent	1,4-Dioxane	Water
MW-5d	11/18/2020	Urgent	1,4-Dioxane	Water
MW-62i	11/22/2020	Urgent	1,4-Dioxane	Water
TW-10	11/23/2020	Urgent	1,4-Dioxane	Water
TW-9	11/23/2020	Urgent	1,4-Dioxane	Water
HZ-S	11/23/2020	Urgent	1,4-Dioxane	Water
MW-68	11/24/2020	Urgent	1,4-Dioxane	Water
MW-140d	11/24/2020	Urgent	1,4-Dioxane	Water
MW-136d	11/30/2020	Urgent	1,4-Dioxane	Water
MW-136s	11/30/2020	Urgent	1,4-Dioxane	Water
MW-136l	11/30/2020	Urgent	1,4-Dioxane	Water

Recipient: Ms. Sue Peters Email: Sue_Peters@Pall.com

No. of Pages (including cover pg.): 33

From: Sarah Stubblefield Email: Sarah.Stubblefield@AnnArborTechnicalServices.com
Senior Chemist / Lab Manager FAX Number: 734-995-3731

Additional Message:

Date: 12/9/20 Signed:

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Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel: 734-995-0959 Fax: 734-995-3731

Upon receipt, samples were scheduled for the following analyses:

Analysis	Number of Samples
1,4-Dioxane (US EPA 1624) (Urgent Turn)	24 + 2 Matrix Spike / 2 Matrix Spike Duplicate

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. All samples were prepared and analyzed within the holding times cited in the corresponding analytical methods. The following exceptions were noted concerning sample condition upon receipt:

- None

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by US EPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LR).

Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed in accordance with US EPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography - Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits.

Anomalies Noted:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the running of a mid-level initial calibration verification (CV) standard at a frequency of every 24 hours (1,4-Dioxane). All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Instrument blanks were analyzed at a frequency of every 24 hours (1,4-Dioxane). All blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fortified Blanks and Matrix Spikes

A laboratory fortified blank (LFB) / laboratory control sample (LCS) was analyzed with each QA/QC batch. The LCS/LFB's met the acceptance criteria with the following exceptions:

- None

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD met the acceptance criteria with the following exceptions:

Sample ID	Constituent	Percent Recovery	Acceptance Limits
MW-116 11/16/20 Matrix Spike Dup	1,4-Dioxane	123.6	80-120%

Matrix Duplicates

A replicate analysis was analyzed with each QA/QC batch. All replicates met the acceptance criteria with the following exceptions:

- None



Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- MW-116 11/16/2020
- MW-105d 11/11/2020
- MW-96 11/16/2020
- IW-2 (6000) 11/18/2020
- IW-2 (12000) 11/18/2020
- MW-1 Rep. 11/18/2020
- TW-18 11/23/2020
- HZ-S 11/23/2020
- MW-185a 11/11/2020
- MW-75 11/12/2020
- IW-2 (3000) 11/18/2020
- IW-2 (9000) 11/18/2020
- MW-22 11/18/2020
- MW-5d 11/18/2020
- TW-9 11/23/2020

For: Ms. Sue Peters
 Pa3 Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pa3 Corporation #G001-002
 Report Date: 12/9/20
 ATS SRF: 1208201

Sample Identification: MW-51a

Sample Date: 11/2/20
 Sample Time: 10:41 AM
 Sampled By: Client
 Laboratory Receipt Date: 12/9/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1631	mg/L	<0.01	0.01	12/9/20	15:09	JEB

Mark DeLong

/ December 9, 2020

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon

/ December 9, 2020

Philip B. Simon (Laboratory Director)

Comments

All methods reference USEPA methods unless otherwise noted.
 na - indicates not available / applicable.

G001-002.20/CN_1208201.doc



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rev. 12/9/20

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pa3 Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pa3 Corporation #G001-002
 Report Date: 12/9/20
 ATS SRF: 1208201

Sample Identification: MW-116

Sample Date: 11/18/20
 Sample Time: 11:45 AM
 Sampled By: Client
 Laboratory Receipt Date: 12/8/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1631	mg/L	0.54	0.04	12/9/20	15:02	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
 na - indicates not available / applicable.

**Organic Analysis
 Data Summary Sheet**

For: Ms. Sue Peters
 Pa3 Corporation
 642 South Wagner Road
 Ann Arbor, MI 48103

ATS Project: Pa3 Corporation #G001-002
 Report Date: 12/9/20
 ATS SRF: 1208201

Sample Identification: MW-105d

Sample Date: 11/11/20
 Sample Time: 12:48 PM
 Sampled By: Client
 Laboratory Receipt Date: 12/9/20
 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1631	mg/L	0.15	0.01	12/9/20	12:15	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
 na - indicates not available / applicable.



284 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/966-8918 Fax: 734/966-3721
Michigan Laboratory ID: 9662
Wisconsin Laboratory ID: W1831778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
842 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: MW-105s

Sample Date: 11/11/20
Sample Time: 2:02 PM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.37	0.01	12/8/20	18:03	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



284 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/966-8918 Fax: 734/966-3721
Michigan Laboratory ID: 9662
Wisconsin Laboratory ID: W1831778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
842 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: MW-76

Sample Date: 11/12/20
Sample Time: 12:02 PM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.33	0.01	12/8/20	18:47	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



284 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/966-8918 Fax: 734/966-3721
Michigan Laboratory ID: 9662
Wisconsin Laboratory ID: W1831778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
842 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: MW-138

Sample Date: 11/12/20
Sample Time: 12:52 PM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.007	0.001	12/8/20	19:21	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



284 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/966-8918 Fax: 734/966-3721
Michigan Laboratory ID: 9662
Wisconsin Laboratory ID: W1831778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
842 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: MW-08**

Sample Date: 11/10/20
Sample Time: 12:47 PM
Sampled By: Client
Laboratory Receipt Date: 12/9/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 1624	mg/L	0.12	0.035	12/8/20	20:15	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

** COC indicates sample was diluted prior to laboratory receipt, a dilution factor of 6 has been applied analytical results.

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rev. 12/9/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0010 Fax: 734/965-0711
Michigan Laboratory ID: 9662
Wastewater Laboratory ID: 980217128

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: MY-57

Sample Date: 11/18/20
Sample Time: 2:10 PM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 824	ng/L	<0.01	0.01	12/8/20	20:58	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/8/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0010 Fax: 734/965-0711
Michigan Laboratory ID: 9662
Wastewater Laboratory ID: 980217128

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: IV-2 (3000)

Sample Date: 11/18/20
Sample Time: 8:25 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 824	ng/L	1.7	0.04	12/8/20	21:42	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/8/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0010 Fax: 734/965-0711
Michigan Laboratory ID: 9662
Wastewater Laboratory ID: 980217128

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: IV-2 (8000)

Sample Date: 11/18/20
Sample Time: 8:00 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 824	ng/L	1.8	0.04	12/8/20	22:26	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/8/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0010 Fax: 734/965-0711
Michigan Laboratory ID: 9662
Wastewater Laboratory ID: 980217128

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: IV-2 (8000)

Sample Date: 11/18/20
Sample Time: 10:25 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	EPA 824	ng/L	1.7	0.04	12/8/20	23:06	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/8/20



248 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0115 Fax: 734/965-3711
Michigan Laboratory ID: 9622
Wisconsin Laboratory ID: 184311726

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/9/20
ATS SRF: 1209201

Sample Identification: MW-2 (12000)

Sample Date: 11/18/20
Sample Time: 10:05 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	1.9	0.04	12/8/20	23:53	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



248 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0115 Fax: 734/965-3711
Michigan Laboratory ID: 9622
Wisconsin Laboratory ID: 184311726

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/9/20
ATS SRF: 1209201

Sample Identification: MW-22

Sample Date: 11/18/20
Sample Time: 10:49 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

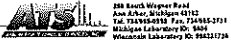
Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	0.65	0.01	12/8/20	0:36	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



248 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0115 Fax: 734/965-3711
Michigan Laboratory ID: 9622
Wisconsin Laboratory ID: 184311726

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1209201

Sample Identification: MW-1 REPLACEMENT

Sample Date: 11/18/20
Sample Time: 12:50 PM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	2.6	0.04	12/8/20	1:20	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



248 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-0115 Fax: 734/965-3711
Michigan Laboratory ID: 9622
Wisconsin Laboratory ID: 184311726

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1209201

Sample Identification: MW-5d

Sample Date: 11/18/20
Sample Time: 1:43 PM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	5.0	0.1	12/8/20	13:43	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/9/20



240 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-8300 Fax: 734/965-8711
Michigan Laboratory ID: 8622
Western Laboratory ID: 932311728

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: MW-03

Sample Date: 11/20/20
Sample Time: 11:04 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analysed By
Organic Analysis							
1,4-Dioxane	EPA 824	mg/L	<0.01	0.01	12/8/20	2:47	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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REV: 12/8/20



240 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-8300 Fax: 734/965-8711
Michigan Laboratory ID: 8622
Western Laboratory ID: 932311728

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: TW-6

Sample Date: 11/23/20
Sample Time: 9:31 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analysed By
Organic Analysis							
1,4-Dioxane	EPA 824	mg/L	0.49	0.01	12/8/20	7:09	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

X:\0101-002-20\120820\120820_AW_120820

REV: 12/8/20



240 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-8300 Fax: 734/965-8711
Michigan Laboratory ID: 8622
Western Laboratory ID: 932311728

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: TW-10

Sample Date: 11/23/20
Sample Time: 8:17 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analysed By
Organic Analysis							
1,4-Dioxane	EPA 824	mg/L	0.32	0.01	12/8/20	4:55	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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REV: 12/8/20



240 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/965-8300 Fax: 734/965-8711
Michigan Laboratory ID: 8622
Western Laboratory ID: 932311728

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/8/20
ATS SRF: 1208201

Sample Identification: HZ-S

Sample Date: 11/23/20
Sample Time: 9:40 AM
Sampled By: Client
Laboratory Receipt Date: 12/8/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analysed By
Organic Analysis							
1,4-Dioxane	EPA 824	mg/L	0.66	0.01	12/8/20	7:52	JEB

Comments
All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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REV: 12/8/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/991-8100 Fax: 734/991-8711
Michigan Laboratory ID: 5602
Wisconsin Laboratory ID: 98331778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
P&B Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&B Corporation #G001-002
Report Date: 12/9/20
ATS SRP: 1208201

Sample Identification: MV-68

Sample Date: 11/24/20
Sample Time: 10:58 AM
Sampled By: Cfont
Laboratory Receipt Date: 12/9/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	12/9/20	8:36	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/9/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/991-8100 Fax: 734/991-8711
Michigan Laboratory ID: 5602
Wisconsin Laboratory ID: 98331778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
P&B Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&B Corporation #G001-002
Report Date: 12/9/20
ATS SRP: 1208201

Sample Identification: MV-1404

Sample Date: 11/24/20
Sample Time: 12:28 PM
Sampled By: Cfont
Laboratory Receipt Date: 12/9/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	12/9/20	9:20	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/9/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/991-8100 Fax: 734/991-8711
Michigan Laboratory ID: 5602
Wisconsin Laboratory ID: 98331778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
P&B Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&B Corporation #G001-002
Report Date: 12/9/20
ATS SRP: 1208201

Sample Identification: MV-135d

Sample Date: 11/29/20
Sample Time: 11:58 AM
Sampled By: Cfont
Laboratory Receipt Date: 12/9/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	12/9/20	10:04	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/9/20



300 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/991-8100 Fax: 734/991-8711
Michigan Laboratory ID: 5602
Wisconsin Laboratory ID: 98331778

Organic Analysis Data Summary Sheet

For: Ms. Sue Peters
P&B Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&B Corporation #G001-002
Report Date: 12/9/20
ATS SRP: 1208201

Sample Identification: MV-135s

Sample Date: 11/29/20
Sample Time: 10:48 AM
Sampled By: Cfont
Laboratory Receipt Date: 12/9/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	12/9/20	10:48	JEB

Comments

All methods reference USEPA methods unless otherwise noted.
na - Indicates not available / applicable.

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rev. 12/9/20



390 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/995-6595 Fax: 734/995-3711
Michigan Laboratory ID: 3604
Wisconsin Laboratory ID: 999317720

Organic Analysis
Data Summary Sheet

For: Ms. Sue Peters
Pall Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002
Report Date: 12/29/20
ATS SRF: 1208201

Sample Identification: MW-1361

Sample Date: 11/30/20
Sample Time: 1:05 PM
Sampled By: CSant
Laboratory Receipt Date: 12/29/20
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyst
Organic Analysis 1,4-Dioxane	EPA 1624	mg/L	<0.001	0.001	12/29/20	11:31	JEB

Comments:
All methods reference USEPA methods unless otherwise noted.
na - indicates not available / applicable.

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rev. 12/30/20



390 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/995-6595 Fax: 734/995-3711
Michigan Laboratory ID: 3604
Wisconsin Laboratory ID: 999317720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG1208201
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 12/29/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-116 11/16/20 Matrix Spike	1.3 mg/L	1.5 mg/L	1.4 mg/L	10.2

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboratory Fortified Blank-1	<0.001 mg/L	0.010 mg/L	0.010 mg/L	95.7
MW-116 11/16/20 Matrix Spike	0.64 mg/L	0.68 mg/L	1.3 mg/L	90.1
MW-116 11/16/20 Matrix Spike Duplicate	0.64 mg/L	0.68 mg/L	1.5 mg/L	123.6*

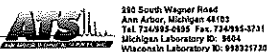
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank-1	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

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rev 12/29/20



390 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/995-6595 Fax: 734/995-3711
Michigan Laboratory ID: 3604
Wisconsin Laboratory ID: 999317720

Quality Assurance / Quality Control
Data Summary

QC Batch Number: QCORG1208202
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation #G001-002
Report Date: 12/28/20

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TW-10 11/23/20 Matrix Spike	1.0 mg/L	1.1 mg/L	1.0 mg/L	11.2

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboratory Fortified Blank-1	<0.001 mg/L	0.010 mg/L	0.009 mg/L	91.6
TW-10 11/23/20 Matrix Spike	0.32 mg/L	0.60 mg/L	1.0 mg/L	81.1
TW-10 11/23/20 Matrix Spike Duplicate	0.32 mg/L	0.60 mg/L	1.1 mg/L	95.5

Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank-2	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to rounding.

Control Limits:
Recoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

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CHAIN OF CUSTODY RECORD

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Project/Client	Sample ID	Sample Description	Collector	Date/Time	Location	Container	Preservation	Analysis	Remarks
Pall Corp. Standard Turn Around	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	Standard Turn Around
Sample 1	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 2	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 3	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 4	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 5	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 6	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 7	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 8	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 9	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 10	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 11	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 12	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 13	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 14	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 15	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 16	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 17	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 18	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L
Sample 19	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.0 mg/L
Sample 20	12/28/20	1,4-Dioxane (EPA 1624)	JEB	12/28/20	Ann Arbor, MI	100 mL	4°C	GC/MS	1.1 mg/L

