GELMAN Sciences Inc.

Gelman Sciences Inc. 642 South Wagner Road Ann Arbor, MI 48103 734.436.4025 phone 734.436.4040 fax

CASE NARRATIVE

Monthly Data Gelman Sciences Project: 1,4-Dioxane Remediation

Date: August 2021

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. attests to the validity of the laboratory data generated by Gelman Sciences Ann Arbor, Michigan Environmental Laboratory facilities reported herein. All analyses performed by Gelman Science's Environmental Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Gelman Science'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 the samples was analyzed for 1,4-dioxane at Gelman Science's Environmental Laboratory. All bromate samples were analyzed by Gelman Science's Environmental Laboratory. The 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 HCl acid-preserved vials to a pH of ≤2, except for the Pall ozone treatment samples. These samples have chemicals that, when mixed with the HCl acid, 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 (±2°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 1ppb (part per billion, micrograms per liter, µg/L). All quality control parameters were within the acceptance limits for reported samples unless indicated.

GELMAN Sciences Inc.

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.

Qualifiers

1,4-Dioxane Qualifier Codes:

Qualifier Code	Description
nd:	The compound was analyzed for, but 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.
0:	Samples analyzed in outside laboratory.
S:	Samples split with DEQ.

Bromate Qualifier Codes:

Qualifier Code	Description
nd:	The compound was analyzed 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: Gage M. Trendel

Date: 9/10/7/

Report Checked by: Ray Woods

Date: 9/10/7/

Sample Analysis Report

August, 2021

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

Analyst	Initials:	
-	Date:	

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-08-30-21-12:31-1	13	1.0			48			0
Extraction Wells								
C3								
DOLPH-08-03-21-10:50-1	130	10						d,o
DOLPH-08-27-21-10:45-1	120	10						d,o
TW-10-08-18-21-09:15-1	620	10						d,o
TW-10-08-27-21-08:30-1	660	10						d,o
TW-14-08-18-21-09:18-1	85	1.0						0
TW-14-08-27-21-08:25-1	94	1.0						0
TW-20-08-18-21-09:10-1	540	10						d,o
TW-20-08-27-21-08:40-1	600	20						d,o
TW-24-08-03-21-11:00-1	1800	100						d,o
TW-24-08-27-21-11:00-1	2100	100						d,o
D2								
LB-4-08-03-21-09:50-1	400	20						d,o
LB-4-08-27-21-10:15-1	400	10						d,o
TW-21-08-03-21-10:25-1	270	10						d,o
TW-21-08-27-21-10:30-1	240	10						d,o
TW-9-08-18-21-09:25-1	390	10						d,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)
TW-9-08-27-21-08:35-1	430	10		ì				d,o
E				18				
TW-17-08-18-21-09:20-1	130	10						d,o
TW-17-08-27-21-08:20-1	86	10						d,o
TW-18-08-03-21-10:40-1	210	10						d,o
TW-18-08-27-21-10:35-1	220	10		77				d,o
TW-23-08-03-21-09:55-1	330	20						d,o
TW-23-08-27-21-10:20-1	320	10						d,o
Marshy								
PW-1-08-03-21-10:45-1	680	20						d,o
PW-1-08-27-21-10:40-1	530	10						d,o
sw		100		V.				
TW-22-08-03-21-11:10-1	460	10						d,o
TW-22-08-27-21-08:50-1	460	20						d,o
TW-28-08-03-21-11:15-1	620	20						d,o
TW-28-08-27-21-08:55-1	620	20						d,o
Monitoring Wells								
C3								
MW-15d-08-09-21-13:09-1	5	1.0						0
MW-15s-08-09-21-14:00-1	3	1.0						0
MW-18d-08-17-21-14:32-1	29	1.0						0
MW-20-08-27-21-13:09-1	nd	1.0						o
MW-32-08-10-21-12:21-1	13	1.0						О
MW-34s-08-26-21-10:04-1	nd	1.0						0
MW-35-08-17-21-13:17-1	2	1.0						0
MW-36-08-27-21-09:46-1	nd	1.0						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)
MW-38s-08-26-21-11:23-1	nd	1.0						o
MW-39s-08-25-21-14:26-1	2	1.0						0
D0								
110 Parkland Plaza-08-27-21-11:17-1	1	1.0			8			0
4401 Park West-08-27-21-14:31-1	5	1.0						0
4742 Park Rd-08-30-21-10:58-1	4	1.0						o
A2 Cleaning Supply-08-02-21-12:30-1	38	1.0						0
MW-31-08-30-21-09:31-1	nd	1.0						0
MW-40d-08-31-21-12:54-1	nd	1.0						0
MW-40s-08-31-21-14:05-1	nd	1.0						0
MW-53d-08-02-21-08:50-1	nd	1.0			*			0
MW-53i-08-02-21-12:08-1	37	1.0						0
MW-53s-08-02-21-10:36-1	nd	1.0						0
MW-59s-08-25-21-12:57-1	nd	1.0						0
MW-60-08-27-21-15:45-1	3	1.0						0
D2								
MW-11d-08-11-21-14:00-1	290	10						d,o
MW-126s-08-25-21-10:30-1	nd	1.0						0
MW-34d-08-26-21-08:54-1	nd	1.0						0
MW-38d-08-26-21-12:33-1	33	1.0						o
MW-39d-08-25-21-15:34-1	20	1.0						0
MW-4d-08-10-21-13:42-1	320	10						d,o
E				···				
MW-100-08-04-21-13:16-1	2000	100						d,o
MW-103s-08-03-21-11:13-1	78	10						d,o
MW-112i-08-03-21-09:56-1	8	1.0						0

	r						1	
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-112s-08-03-21-08:46-1	2	1.0						0
MW-115-08-04-21-11:52-1	520	10						d,o
MW-116-08-04-21-10:36-1	660	10						d,o
MW-126d-08-25-21-09:16-1	nd	1.0						o
MW-59d-08-25-21-11:48-1	nd	1.0						o
MW-64-08-31-21-11:18-1	34	1.0						0
MW-66-08-17-21-12:06-1	2	1.0						0
MW-72d-08-05-21-13:53-1	510	20						d,o
MW-76i-08-03-21-12:30-1	94	10						d,o
MW-76s-08-03-21-13:40-1	260	10						d,o
MW-81-08-04-21-09:16-1	140	10						d,o
MW-84s-08-02-21-14:00-1	310	10						d,o
sw								
MW-10d-08-31-21-09:59-1	230	10						d,o
MW-52d-08-26-21-13:54-1	nd	1.0						0
MW-52i-08-26-21-15:05-1	1	1.0						0
Surface Water								
Not Applicable								
HC/HR-08-02-21-10:00-1			nd	2.0				
HC/HR-08-03-21-09:40-1			nd	2.0				
HC/HR-08-04-21-11:00-1			nd	2.0				
HC/HR-08-05-21-08:00-1			nd	2.0				
HC/HR-08-06-21-08:15-1			nd	2.0				
HC/HR-08-09-21-09:00-1			nd	2.0				
HC/HR-08-10-21-09:00-1			nd	2.0				
HC/HR-08-11-21-09:00-1			nd	2.0				

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)
HC/HR-08-16-21-13:18-1			nd	2.0				
HC/HR-08-17-21-08:15-1			nd	2.0				
HC/HR-08-18-21-08:35-1			nd	2.0				
HC/HR-08-19-21-07:35-1			nd	2.0				
HC/HR-08-20-21-07:20-1			nd	2.0				
HC/HR-08-23-21-07:45-1			nd	2.0				
HC/HR-08-27-21-10:00-1			nd	2.0				
HC/HR-08-30-21-11:00-1			nd	2.0				
HC/HR-08-31-21-09:00-1			nd	2.0				
Treatment System							•	•
OUTFALL-08-01-21-2			7.2	5.0				
OUTFALL-08-01-21-1	8	1.0						o
OUTFALL-08-02-21-2			8.8	5.0				
OUTFALL-08-02-21-1	8	1.0						0
OUTFALL-08-03-21-2			10	5.0				
OUTFALL-08-03-21-1	8	1.0						О
OUTFALL-08-04-21-2			8.8	5.0				
OUTFALL-08-04-21-1	8	1.0						0
OUTFALL-08-05-21-2			9.6	5.0				
OUTFALL-08-05-21-1	8	1.0						0
OUTFALL-08-08-21-2			11	5.0				침
OUTFALL-08-08-21-1	8	1.0						0
OUTFALL-08-09-21-2			9.0	5.0				
OUTFALL-08-09-21-1	8	1.0						0
OUTFALL-08-10-21-2			6.7	5.0				
OUTFALL-08-10-21-1	9	1.0					ă.	0
OUTFALL-08-11-21-2			10	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-08-11-21-1	9	1.0						0
OUTFALL-08-16-21-2			10	5.0				
OUTFALL-08-16-21-1	8	1.0						0
OUTFALL-08-17-21-2			10	5.0				
OUTFALL-08-17-21-1	9	1.0						0
OUTFALL-08-18-21-2			5.8	5.0				
OUTFALL-08-18-21-1	9	1.0						0
OUTFALL-08-19-21-2			8.0	5.0				
OUTFALL-08-19-21-1	8	1.0						0
OUTFALL-08-22-21-2			9.6	5.0				
OUTFALL-08-22-21-1	8	1.0	į=					0
OUTFALL-08-26-21-2			6.0	5.0				
OUTFALL-08-26-21-1	5	1.0						0
OUTFALL-08-27-21-1			5.4	5.0				
OUTFALL-08-27-21-2	6	1.0						0
OUTFALL-08-28-21-2			4.9	5.0				
OUTFALL-08-28-21-1	6	1.0						0
OUTFALL-08-29-21-2			6.4	5.0				
OUTFALL-08-29-21-1	6	1.0						0
OUTFALL-08-30-21-2			7.5	5.0				
OUTFALL-08-30-21-1	6	1.0						0
OUTFALL-08-31-21-2			5.5	5.0				
OUTFALL-08-31-21-1	6	1.0						0
Red Pond-08-02-21-08:15-1	450	10						d,o
Red Pond-08-09-21-08:50-1	410	20						d,o
Red Pond-08-17-21-07:54-1	410	10						d,o
Red Pond-08-27-21-07:05-1	310	1.0						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)
Red Pond-08-30-21-07:30-1	300	20						d,o



Data Transmittal Cover Page

Project Name: Pall Corporation

ATS Project Number: G001-002 ATS Report Number(s):

Org_SRF_Aug_PO3919

Client PO Number: 4504293919

Project Description:

This data report contains the results of 105 water samples, received by ATS during the month of August, to be analyzed for 1,4 Dioxane.

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 Laborariories, as required by USEPA. Laborariory data sheets, SOPs, and DA/OC Information are available for inspection and audit at the laborary upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient:	Mr. Gage Trendel		Email: FAX Number:	otrendel@fv-operations.com
No. of Pag	es (including cover pg.):	211		
From:	Sarah Stubblefield	Emall:	Sarah, Stubblefie	Id@AnnArborTechnIcalServices.com
	Senior Chemist / Lab Manager	FAX Number:	734-995-3731	
Additional	Message:			
Date:	9/8/21	Signed:	349	fa

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Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Outfall	8/4/21	Urgent	1,4-Dioxane	Water
Received 8/6/21	8.4121	Orgene	, Transand	Traite
Outfall	8/5/21	Urgent	1,4-Dioxane	Water
Received 8/9/21	073721	Organ	1,4-Dioxage	Have.
Outfall	8/8/21	Urgent	1,4-Dioxage	Water
Eff-OC-1A	8/9/21	Urgent	1,4-Dioxana	Water
Eff-OC-2A	8/9/21	Urgent	1,4-Dioxane	Water
Red Pond	8/9/21	Urgent	1,4-Dioyane	Water
MW-97d	7/20/21	Urgent	1,4-Dioxane	Water
Received 8/10/21				- Landon Maria
Outfall	8/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/10/21	Urgent	1,4-Dioxans	Water
Eff-OC-2A	8/10/21	Urgent	1,4-Diaxane	Water
Received 8/11/21				
Outfall	8/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/11/21	Urgeat	1,4-Dioxane	Water
Eff-OC-2A	8/11/21	Urgent	1,4-Dioxane	Water
Received 8/16/21	3 - 2		- 1411	
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
MW-15d	8/9/21	Standard	1,4-Dioxane	Water
MW-15s	8/9/21	Standard	1,4-Dioxane	Water
MW-32	8/10/21	Standard	1,4-Dioxane	Water
MW-4d	8/10/21	Standard	1,4-Dioxane	Water
MW-72d	8/5/21	Standard	1,4-Dioxane	Water
MW-11d	8/11/21	Standard	1,4-Dioxane	Water
MW-100	8/4/21	Standard	1,4-Dioxane	Water
MW-115	8/4/21	Standard	1,4-Dloxane	Water
MW-116	8/4/21	Standard	1,4-Dioxane	Water
MW-81	8/4/21	Standard	1,4-Dioxane	Water
Received 8/17/21				***
Eff-OC-1A	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/17/21	Urgent	1,4-Dioxane	Water
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
Outfall	8/11/21	Urgent	1,4-Dioxane	Water
Red Pond Received 8/18/21	8/17/21	Standard	1,4-Dioxans	Water
Outfall	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/18/21	Urgent	1,4-Dioxane	Water
MW-18d	8/17/21	Standard	1,4-Dioxane	Water
MW-35	8/17/21	Standard	1,4-Dioxane	Water
MW-66	8/17/21	Standard	1,4-Dioxano	Water
Received 8/19/21	WI WAL	Juniona	-17-breaking	*******
Outfull	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/19/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/19/21	Urgent	1,4-Dioxane	Water
Received 8/20/21		- Cigani	.,	
Outfall	8/19/21	Urgent	1.4-Dioxane	Water
Eff-OC-IA	8/20/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/20/21	Urgent	1,4-Dioxane	Water
TW-9	8/18/21	Standard	1,4-Dioxane	Water
TW-17	8/18/21	Standard	1,4-Dioxane	Water
TW-14	8/18/21	Standard	1,4-Dioxane	Water
TW-10	8/18/21	Standard	1,4-Dioxane	Water

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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21 SRF / SDG Number(s)

 0802211
 0805211
 0810211
 0816212
 0819211
 0826211

 0803211
 0806211
 0811211
 0817211
 0820211
 0827211

 0804211
 0809211
 0816211
 0818211
 0823211
 0827212

Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 105 samples that were received at Ann Arbor Technical Services, Inc. (ATS) during the month of August under PO number 4504293919, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/2/21				
Outfall	8/1/21	Urgent	1,4-Dioxans	Water
Red Pond	8/2/21	Standard	1,4-Dioxane	Water
Received 8/3/21			100000000000000000000000000000000000000	
Outfall	8/2/21	Urgent	1,4-Dioxane	Water
Received 8/4/21				
Outfall	8/3/21	Urgent	1,4-Dioxane	Water
A2 Cleaning Supply	8/2/21	Standard	1,4-Dioxane	Water
MW-53s	8/2/21	Standard	1,4-Dioxane	Water
MW-53d	8/2/21	Standard	1,4-Dioxana	Water
MW-84s	8/2/21	Standard	1,4-Dioxane	Water
MW-53i	8/2/21	Standard	1,4-Dioxane	Water
Dolph	8/3/21	Standard	1,4-Dioxene	Water
TW-18	8/3/21	Standard	1,4-Dioxane	Water
TW-21	8/3/21	Standard	1,4-Dioxane	Water
TW-22	8/3/21	Standard	1,4-Dioxane	Water
LB-4	8/3/21	Standard	1,4-Dioxane	Water
PW-1	8/3/21	Standard	1,4-Dioxane	Water
TW-23	8/3/21	Standard	1,4-Dioxane	Water
TW-28	8/3/21	Standard	1,4-Dioxane	Water
TW-24	8/3/21	Standard	1,4-Dioxane	Water
MW-761	8/3/21	Standard	1,4-Dioxane	Water
MW-761	8/3/21	Standard	1,4-Dioxane	Water
MW-103s	8/3/21	Standard	1,4-Dioxane	Water
MW-112i	8/3/21	Standard	1,4-Dioxane	Water
MW-112s	8/3/21	Standard	1,4-Dioxane	Water
Received 8/5/21				
Eff-OC-1A	8/4/21	Urgent	1,4-Dioxans	Water
Eff-OC-2A	8/4/21	Urgent	1,4-Dioxane	Water

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Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
TW-20	8/18/21	Standard	1,4-Dioxane	Water
Received 8/23/21				
Outfall	8/22/21	Urgent	1,4-Dioxana	Water
Received 8/26/21				
MW-126d	8/25/21	Standard	1,4-Dioxane	Water
MW-126s	8/25/21	Standard	1,4-Dioxane	Water
MW-59d	8/25/21	Standard	1,4-Dioxane	Water
MW-591	8/25/21	Standard	1,4-Dioxane	Water
MW-39s	8/25/21	Standard	1,4-Dioxane	Water
MW-394	8/25/21	Standard	1,4-Dioxane	Water
Received 8/27/21				
Outfall - Grab (19:15)	8/26/21	Urgent	1,4-Dioxage	Water
Eff-OC-1A	8/26/21	Urgent	1,4-Dioxana	Water
Eff-OC-2A	8/26/21	Urgent	1,4-Dioxane	Water
Outfall	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/27/21	Urgent	1,4-Dioxane	Water
Red Pond	8/27/21	Urgent	1,4-Dioxane	Water
MW-34d	8/26/21	Standard	1,4-Dioxane	Water
MW-34s	8/26/21	Standard	1,4-Dioxans	Water
MW-38s	8/26/21	Standard	1,4-Dioxans	Water
MW-38d	8/26/21	Standard	1,4-Dioxane	Water
MW-524	8/26/21	Standard	1,4-Dioxane	Water
MW-52i	8/26/21	Standard	1,4-Dioxane	Water
TW-17	8/27/21	Standard	1,4-Dioxane	Water
TW-14	8/27/21	Standard	1,4-Dioxano	Water
TW-10	8/27/21	Standard	1,4-Dioxane	Water
TW-9	8/27/21	Standard	1,4-Dioxane	Water
TW-20	8/27/21	Standard	1,4-Diaxane	Water
TW-22	8/27/21	Standard	1,4-Dioxane	Water
TW-28	8/27/21	Standard	1,4-Dioxane	Water
LB-4	8/27/21	Standard	1,4-Dioxane	Water
TW-23	8/27/21	Standard	1,4-Dioxane	Water
TW-21	8/27/21	Standard	1,4-Dioxane	Water
TW-18	8/27/21	Standard	1,4-Dioxane	Water
PW-1	8/27/21	Standard	1,4-Dioxane	Water
Dolph	8/27/21	Standard	1,4-Dioxane	Water
TW-24	8/27/21	Standard	1,4-Dioxans	Water

Upon receipt samples were scheduled for the following analyses.

Analysis

Number of Samples

- stuniest in Samples

 1,4-Dioxane (USEPA 1624) Urgent TAT

 1,4-Dioxane (USEPA 1624) Standard TAT

 1,4-Dioxane (USEPA 1624) Standard TAT

 6 5 Samples + 5 Matrix Spikes + 5 Matrix Spike Duplicates





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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

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 USEPA. 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.



/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

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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 USEPA. 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 RS 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 by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None





LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21 SRF / SDG Number(s): 0802211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following two samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/2/21, and associated matrix-specific QA/QC:

Client Sample Identification Received 8/2/21		ent Sample Identification Sample Date Requested Turn Around Time		Analysis	Matrix
	Outfall	8/1/21	Urgent	1,4-Dioxane	Water
	Red Pond	8/2/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis Number of Samples

1,4-Dioxane (USEPA 1624) - Urgent TAT

I Sample

• 1 Sample 1,4-Dioxane (USEPA 1624) – Standard TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 43 days with the following exceptions:

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OA/OC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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:

Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

• None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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:

• Red Pond 8/2/21

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/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

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Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pail Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date:

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0802211 #G001-002

Sample Identification: Red Pond 8/2/21 8:15 AM Client 8/2/21

Sampled By: Laboratory Receipt Date: Sample Matrix:

Reporting Limit Units Result SLS 7:21 US EPA 1624 0.45 0.01 8/3/21

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



Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0802211

Sample Identification: Outfall 001

Sample Date: 8/1/21

Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

na Client 8/2/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Time	By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	600.0	0.001	8/2/21	15:51	SLS

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.
Sample analyzed at native pH.

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Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0801211
Parameter: 1,4-Dioxane (EPA 1624)

#G001-002 ATS Project: Pall Corporation Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-108s 7/28/21 Matrix Splika	0.51 mg/L	0.48 mg/L	0.49 mg/L	5.1

SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known	Spike	Analyzed	Recovery
	Concentration	Concentration	Concentration	(percent)
#G001-002 Laboratoo; Fortified Blank MW-1088 778521 Malrix Spike MW-1088 778521 Malrix Spike Duplitate	<0.001 mg/L 0.26 mg/L 0.26 mg/L	0.010 mg/L 0.25 mg/L 0.25 mg/L	0.011 mg/L 0.51 mg/L 0.48 mg/L	108.5 97.5 87.5

BLANK ANALYSIS Analyzed Concentration Sample #G001-002 Laboratory Reagent Blank

Comments:

Control Limits:

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

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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

I.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted: · None

Calibration Verification

Analytical QA/QC Summary

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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

Laboratory Reagent Blanks · None

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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0803211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following one sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 8/3/21, and associated matrix-specific QA/QC:

CI	lient Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/3/21					
	Outfall	8/2/21	Urgent	1.4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

. 1,4-Dioxane (USEPA 1624) - Urgent TAT

. I Sample

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

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 USEPA. 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).

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Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

· None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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.

None

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/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021





ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0803211 #G001-002

Sample Identification: Outfall 001

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

8/2/21

Sample Date: Sample Time: Sampled By; Laboratory Receipt Date: Sample Matrix: 8/3/21 Water

Analysis Date Analysis Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Result Time Ву 8/3/21 20.02 SLS

CHAIN OF CUSTODY RECORD

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable. Sample enalyzed at native pH.

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Quality Assurance / Quality Control **Data Summary**

ATS Project: Pall Corporation Report Date: 9/7/21

QC Batch Number: QCORG0803211 Parameter: 1,4-Dioxane (EPA 1624)

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
WG001-002 Ann Arbor Tap Water B0/21 Matrik Spike	0.010 mg/L	0.010 mg·L	0.010 mg/L	3.2
SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboralory Fortfied Blank Ann Arbor Tap Water 8/3/21 Matrix Spike Ann Arbor Tap Water 8/3/21 Matrix Spike Duplicate	<0.001 mg/L <0.001 mg/L <0.001 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.009 mg/L 0.010 mg/L 0.010 mg/L	94 102.5 105.8

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

Comments: Calculations performed prior to rounding.

Control Limits:

Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<20%)

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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21 SRF / SDG Number(s): 0804211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following twenty samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/4/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/4/21				
Outfall	8/3/21	Urgent	1,4-Dioxane	Water
A2 Cleaning Supply	8/2/21	Standard	1,4-Dioxana	Water
MW-53s	8/2/21	Standard	1,4-Dioxane	Water
MW-53d	8/2/21	Standard	1,4-Dioxane	Water
MW-84s	8/2/21	Standard	1,4-Dioxane	Water
MW-53i	8/2/21	Standard	1,4-Dioxane	Water
Dolph	8/3/21	Standard	1,4-Dioxane	Water
TW-18	8/3/21	Standard	1,4-Dioxane	Water
TW-21	8/3/21	Standard	1,4-Dioxane	Water
TW-22	8/3/21	Standard	1,4-Dioxane	Water
LB-4	8/3/21	Standard	1,4-Dioxane	Water
PW-I	8/3/21	Standard	1,4-Dioxane	Water
TW-23	8/3/21	Standard	1,4-Dioxane	Water
TW-28	8/3/21	Standard	1,4-Dioxane	Water
TW-24	8/3/21	Urgent	1,4-Dioxane	Water
MW-76s	8/3/21	Standard	1,4-Dioxane	Water
MW-76i	8/3/21	Standard	1,4-Dioxane	Water
MW-103s	8/3/21	Standard	1,4-Dioxane	Water
MW-112i	8/3/21	Standard	1,4-Dioxane	Water
MW-112s	8/3/21	Standard	1,4-Dioxane	Water

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Upon receipt samples were scheduled for the following analyses.

Number of Samples

- 2 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate . 1,4-Dioxane (USEPA 1624) - Urgent TAT
 - 18 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
- 1,4-Dioxane (USEPA 1624) Standard TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

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 USEPA. 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 RS EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

1.4-Dioxane Analysis (GCAIS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1634 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial callibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

· None

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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-84s 8/3/21 • TW-21 8/3/21
- Dolph 8/3/21
- TW-22 8/3/21
- TW-18 8/3/21 • LB-4 8/3/21
- . PW-1 8/1/21
- TW-23 8/3/21
- TW-28 8/3/21

- TW-24 8/3/21 MW-103s 8/3/21
- MW-76s 8/3/21
- · MW-76i 8/3/21

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/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

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Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

• None

OA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

Matrix Spikes and Spike Duplicates

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

• None

Matrix Replicates

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

None

None

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Organic Analysis **Data Summary Sheet**

ATS Project: Pall Corporation
Report Date: 977/21

ATS SRF: 0804211 For: Mr. Gage Trendel #G001-002 Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Identification: Outfail 001 Sample Date: 8/3/21 Sample Time: Sampled By: Client Laboratory Receipt Date: Sample Matrix:

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis			//				
1,4-Dloxane	US EPA 1624	mg/L	0.008	0.001	8/4/21	17:58	SLS

Comments All methods reference US EPA methods unless otherwise noted. na - indicates not available / applicable. Sample analyzed at native pH.

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ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

#G001-002

Sample Identification: A2 Cleaning Supply

Sample Date; 8/2/21 Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

12:30 PM 8/4/21 Water

Reporting Limit Units Result Parameter Organic Analysis 1,4-Dioxane Method US EPA 1624 mg/L 0.001 14:45 SLS 8/31/21

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

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Organic Analysis

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Data Summary Sheet ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Identification: MW-53d 8/2/21 8:50 AM Client 8/4/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: Water

Analysis Date Reporting Limit Result Method Units Time Ву US EPA 1624 21:54 SLS 1.4-D'oxane <0.001 0.001 8/27/21

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Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: MW-53s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/2/21 10:36 AM Cilent 8/4/21 Water

Reporting Limit Units Result SLS 1,4-Dloxane US EPA 1624 mg/L <0.001 0.001 8/27/21 21:10

Comments

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

X1G001-002-2/ISRF 080421110RG_SRF_0804211

164. 9/7/21

Organic Analysis



Data Summary Sheet #G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0804211

Sample Identification:

MW-84s 8/2/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

2:00 PM

8/4/21 Water

Parameter Organic Analysis 1,4-Dioxane Result SLS

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.



For: Mr. Gago Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: MW-53I

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

1,4-Dioxane

8/2/21 12.08 PM Client 8/4/21 Water

Parameter Organic Analysis

Analyzed By Reporting Limit Method Result SLS US EPA 1624 0.037 0.001 8/27/21 23:22

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

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Ann Arbor, Mich
Tal. 734795-674
Michigan Labor

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: TW-18

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/3/21

10:40 AM Client 8/4/21 Water

Parameter Organic Analysis

1,4-Dloxane

Analyzed By Reporting Limit Method Units Result US EPA 1624 0.21 0.01 8/28/21 7:59 SLS

200 South Wagner Read Ann Arbor, Michigan 48103 En. 734/935-0935 Frz. 734/935-3331 Michigan Laborshoy Dr. 9504

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: Dolph

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

10:50 AM Client 8/4/21

Analysis Time Reporting Limit Parameter Organic Analysis 1,4-Dioxane Date Ву US EPA 1624 0.13 0.01 8/28/21 SLS

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

X1G001-022-21/SRF 0804211/CRG_SRF_6804211

rev. 9/7/21



Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0804211 #G001-002

Sample Identification: TW-21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/3/21 10:25 AM Client 8/4/21 Water

Reporting Limit Parameter Organic Analysis Method Units Result 1,4-Dioxane US EPA 1624 0.27 0.01 8/28/21 8:43 SLS

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

Comments

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

rev. 9/7/21

X10091-0322115RF 080421110RG_SRF_0804211

rev. 9/7/21



Organic Analysis

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: TW-22

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: 8/3/21 11:10 AM Client 8/4/21

Sample Matrix: Water

Parameter Organic Analysis 1.4-D'ovane US EPA 1624

Comments
All methods reference US EPA methods unless otherwise no na - Indicates not available / applicable.

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200 South Wagner Ros Arm Arhor, Michigan 4 Tel. 734795-6995 Fax. Michigan Laboratory E

Organic Analysis Data Summary Sheet ATS Project: Pall Corporation
Report Date: 977/21
ATS SRF: 0804211

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Identification: PW-1 8/3/21 10:45 AM 8/4/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Analysis Time Analyzed By Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units Result US EPA 1624 0.02 8/28/21 10:56 SLS

Data Summary Sheet

0.46

Analysis Date Reporting Limit Ву SLS 0.01 9:27

X1G001-002.21\SRF 0104211\ORG_SRF_0104211

na - Indicates not available / applicable.

Comments

All methods reference US EPA methods unless otherwise noted.

230 South Wagner Road Arm Action, Michigan 45163 Arm Tolkrobleson Str. 274095-52731 Michigan Laboratory Dr. 1904

Sample Identification: L8-4

8/3/21 9:50 AM Client 8/4/21 Water

US EPA 1624

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Parameter Organic Analysis 1,4-Dioxane

250 Bouth Wagner Road Arn Arbor, Michigan & Tell. 724935-6095 Fee 1 Michigan Laboratory D

Organic Analysis Data Summary Sheet ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211

rev. 9/7/21

Organic Analysis Data Summary Sheet

Analysis Timo

10:11

Analysis Date

Reporting Limit

#G001-002

Analyzed

Ву

SLS

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211

Result

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

> Sample Date: Sample Time:

TW-23 8/3/21 9:55 AM

Sampled By: Client 8/4/21 Laboratory Receipt Date Sample Matrix

Sample Identification:

Analysis Analysis Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxana Method Units Result Date Time Ву US EPA 1624 8/28/21 11:40 SLS

Comments
All methods reference US EPA methods unless otherwise noted.

ne - Indicates not available / applicable.

X10001-002.21ISRF 0804211IORQ_SRF_C604211

na - Indicates not available / applicable.

Comments
All methods reference US EPA methods unless otherwise noted.

XYG001-002.25/SRF 0504211\ORG SRF 0504211



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pa'l Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: TW-28

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date:

Sample Matrix:

8/3/21 11:15 AM Client 8/4/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.62	0.02	8/28/21	20:59	SLS

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

X/G001-002 21/SRF 0804211/ORG SRF 0804211

rev. 9/7/21

Organic Analysis

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Data Summary Sheet ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

For: Mr, Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Identification: MW-76s

Sample Date: Sample Time: Sampled By: 8/3/21 1:40 PM Client 8/4/21 Laboratory Receipt Date: Sample Matrix:

Analysis Time Analysis Date Reporting Limit Parameter Organic Analysis 1,4-Dioxans Units Result US EPA 1624 8/28/21 22:27 SLS

290 South Wegner Ro Arm Arbor, Michigand Tel. 734/956-9015 Fee

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: TW-24

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

11:00 AM Cflent 8/4/21 Water

Analysis Date Reporting Limit Method Units

Comments

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

X1G001-002.21\SRF 0004211\ORG_6RF_0004211

rev. 9/7/21

290 South Wagner Road
Am Advar, Michigan 68103
Tel. 734095-0915 Fer. 734095-3731
MCHISTOR 68052781EXXISTER

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 977/21
ATS SRF: 0804211 #G001-002

Sample Identification: MW-76

Sample Date: Sample Time; Sampled By: Laboratory Receipt Date: Sample Matrix:

Parameter Organic Analysis 1,4-Dioxane

8/3/21 12:30 PM Client 8/4/21 Water

Units

Reporting Limit Result

Analysis Date Analysis Ву

Comments

All methods reference US EPA methods unless otherwise noted.

Comments

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



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: MW-103s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date:

Sample Matrix:

8/3/21 11:13 AM 8/4/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.078	0.01	8/28/21	23:55	SLS

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / app@cable.

X1G001-002.21\SRF-0804211\DRG_SRF-0804211

rev. 9/7/21



Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 46103

ATS Project: Pall Corporation Report Date: 9/7/21 ATS SRF: 0804211

Sample Identification: MW-112s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/3/21

8:46 AM Client 8/4/21 Water

Parameter Organic Analysis 1,4-Dloxane

Analyzed Reporting Limit Method Units Result Time By US EPA 1624 ma/L 0.002 0.001 8/29/21 1:23 SLS

250 South Wayner Road Am Arbon, Michelyan 44103 141, T34/935-995 Frz. 724/93-3731 Michigan Haberston Dr. Sand

Organic Analysis **Data Summary Sheet**

For: Mr. Gago Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0804211 #G001-002

Sample Identification: MW-112i

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/3/21 9:56 AM Cllent 8/4/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis						P	
1,4-Dioxane	US EPA 1624	ma/L	0.008	0.001	8/29/21	0:39	SIS

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

X1G001-002.21\ERF 0804211\DRG_6RF_0804211

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Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0084211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21

#G001-002

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/4/21 Matrix Spike	0.012 mg/L	0.011 mg/L	0.011 mg/L	1.8

SPIKES and/or QC CHECK SAMPLES Knowr Analyzed Concentration Spike Recovery Sample/Analyte Concentration Laboratory Fortified Blank
Ann Arbor Tap Water 8/4/21 Matrix Splke
Ann Arbor Tap Water 8/4/21 Matrix Splke Duplicate <0.001 mg/L 0.010 mg/L 0.012 mg/L 0.011 mg/L <0.001 mg/L <0.001 mg/L 0.010 mg/L 0.010 mg/L 115.2 113.2

BLANK ANALYSIS Sample Analyzed Concentration QC Decision #G001-002 Laboratory Resgent Blank <0.001 mg/L

Comments:

Control Limits:

coveries Laboralory Control Sample Recovery (65 - 115%) Matrix Spike Recovery (60 - 120%) lative Range Replicates (<20%)

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.



Quality Assurance / Quality Control **Data Summary**

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Dolph 8/3/21 Matrix Splice	0.31 mg/L	0.31 mg/L	0.31 mg/L	1.1

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
(G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.3
Dolph 8/3/21 Matrix Spike	0.13 mg/L	0.20 mg/L	0.31 mg/L	8.09
Dolph 8/3/21 Matrix Spike Duplicate	0.13 mg/L	0.20 mg/L	0.31 mg/L	92.4

Sample	Analyzed Concentration	QC Decision	
WG001-002 Leboratory Reagent Blank	<0.001 mg/L	Acceptable	

Comments:	
Calculations performed prior to rounding.	

Control Limits:

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

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QC Batch Number: QCORG0831211 Parameter: 1,4-Dioxane (EPA 1624)

SPIKES and/or QC CHECK SAMPLES

Sample

Laboratory Fort/fed Blank
TW-24 8/3/21 Matrix Spike
TW-24 8/3/21 Matrix Spike Duplicate

BLANK ANALYSIS

Comments:

#G001-002

Sample

REPLICATE ANALYSIS

3001-002

Quality Assurance / Quality Control

Mean

4.2 mg/l

Analyzed Concentration

0.010 mg/l

4.2 mg/L 4.2 mg/L

Analyzed Concentration

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

ATS Project: Pall Corporation Report Date: 9/7/21

Replicate #2

4.2 mg/t

Spike Concentration

2.0 mg/L 2.0 mg/L

Control Limits:

Results of QA Samples run concurrently with project samples

Replicate #1

4.2 mg/L

1.8 mg/L 1.8 mg/L

Data Summary

#G001-002

Range (percent)

0.3

Recovery (percent)

119.1 119.6

QC Decision

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21 SRF/SDG Number(s): 0805211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/5/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/5/21				
Outfall	8/4/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/4/21	Urgent	1,4-Dioxane	Water
Eff-IC-2A	8/4/21	Urgent	1.4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Number of Samples 1,4-Dioxane (USEPA 1624) - Urgent TAT . 3 Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

G001-002.21/CN 0805211.doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731



CHAIN OF CUSTODY RECORD

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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 (SOPa) specific to the ATS Laboratory, as required by USEPA. 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 1, 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 by purge and trap GC/MS in accordance with USEPA method 1634 (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. Samples were reported as mg/L.

Anomalies Noted:

· None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

None

G001-002.21/CN_0805211.doc





Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel	ATS Project:	Pall Corporation	#G001-002
Pall Corporation	Report Date:	9/7/21	
642 South Wagner Road	ATS SRF:	0805211	
Ann Ashar III (0102			

Sample Identification:	Eff-OC-1A
Sample Date:	8/4/21
Sample Time:	1:20 PM
Sampled By:	Client
Laboratory Receipt Date:	8/4/21
Sample Matrix:	Water

	Water						
_	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By

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:

Laboratory Fortified Blanks / Laboratory Control Samples

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

• None
• None

Matrix Spikes and Spike Duplicates

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

• None

Matrix Replicates

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

• None
• 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:

• None

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002.21/CN_0805211.doc





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Report Date: 9/7/21 ATS SRF: 0805211

ATS Project: Pall Corporation
Report Date: 9/7/21

Eff-OC-2A

Sample Date: Sample Date: Sampled By; Laboratory Receipt Date: Sample Matrix

8/4/21

Reporting Limit Units Result Date 1,4-Dloxane US EPA 1624

Comments

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

Sample analyzed at native pH.

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Organic Analysis **Data Summary Sheet**

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0805211 #G001-002

Sample Identification: Outfall 001

Sample Date: 8/4/21 Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/4/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.008	0.001	8/8/21	0:08	SLS

Comments

CHAIN OF CUSTODY RECORD

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable. Sample analyzed at native pH

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Quality Assurance / Quality Control Data Summary

> ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#6001-002 Ann Arbor Tap Water 8/5/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	4.4

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	103.4
Ann Arbor Tap Water 8/5/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	104.2
Ann Arbor Tap Water 8/5/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	108.9

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

Comments:

Control Limits:

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

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rev 9/7/2



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21 SRF/SDG Number(s): 0806211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 8/6/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/6/21				
Outfall	8/5/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Number of Samples Analysis 1,4-Dioxane (USEPA 1624) -- Urgent TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

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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 USBPA. 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

<u>I.4-Dioxane Analysis (GC/MS)</u>: Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

· None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

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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:

None

Markalatong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0806211.doc

/ September 7, 2021



QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

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

None

None

G001-002.21/CN 0306211.doc





Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0806211 #G001-002

Sample Identification: Outfall 001 Sample Date: 8/5/21 Sample Time: Sampled By: Client Laboratory Receipt Date: Sample Matrix: 8/6/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis					Torrestor.	Constant	
1.1.01	110 EDA 1524	mad	0.008	0.001	8/6/21	10:52	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable. Sample analyzed at native pH.

X1G001-002.21/SRF 0805211/ORG_SRF_0805211



Quality Assurance / Quality Control **Data Summary**

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tay Water 8-6/21 Matrix Spika	0.009 mg/L	0.010 mg/L	0.009 mg/L	10.5

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002 Laboratop Fort.fed Blank Ann Arbor Tap Water 8/8/21 Matrix Spike Ann Arbor Tap Water 8/6/21 Matrix Spike Duplicate	<0.001 mg/L <0.001 mg/L <0.001 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.010 mg/L 0.009 mg/L 0.010 mg/L	96.6 87.4 97.1

Sample Analyzed Concentration QC Decision G001-002 Ragnent Blank <0.001 mg/L

Comments:

Control Limits:

overles Leboratory Control Sample Recovery (85 - 115%) Matrix Splka Recovery (80 - 120%)

Relative Range Replicates (<20%)

<\G001-002.21\SRF 0806211\ORG SRF_0806211</p>

CHAIN OF CUSTODY RECORD



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF/SDG Number(s): 0809211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following five samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/9/21, and associated matrix-specific QA/QC:

imples				
Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/9/21				
Outfall	8/8/21	Urgent	1,4-Dioxane	Water
Eff-OC-IA	8/9/21	Urgent	1,4-Dioxans	Water
Eff-OC-2A	8/9/21	Urgent	1,4-Dioxane	Water
Red Pond	8/9/21	Urgent	1,4-Dioxane	Water
MW-97d	7/20/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

1,4-Dioxane (USEPA 1624) - Urgent TAT

Number of Samples

Samples + I Matrix Spike + I 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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

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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 USPA. All data are peer and management reviewed to enzure 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 RS EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

I.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

· None



OA/OC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

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

None

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Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0809211 #G001-002

Sample Identification: Outfall 001 Sample Date: 8/8/21 Sample Time: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Analysis / Analysis Date Ву Parameter Organic Analysis US EPA 1624 13:07 SLS 1,4-Dioxane

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:

Red Pond 8/9/21

Mackalatong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/September 7, 2021

G001-002.21/CN 0509211.doc





Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wegner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0809211 #G001-002

Sample Identification: Eff-OC-1A Sample Date: Sample Time: Sampled By: 8/9/21 Laboratory Receipt Date: Sample Matrix

Client 8/9/21 Water

Analyzed Analysis Date Reporting Limit Units Result Time Ву Parameter Organic Analysis Method 13:52 SLS 1.4-Dloxane US FPA 1624 0.008 0.001 8/9/21

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

Commenta
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native při.

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For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Pall Corporation 9/7/21 0809211 #G001-002

Sample Identification: Eff-OC-2A

Sample Date: Sample Time; Sampled By: Laboratory Receipt Date: Sample Matrix:

8/9/21 8:42 AM Client 8/9/21 Water

Analysis Time Analyzed By Reporting Limit Parameter Organic Analysis Method SLS 1,4-Dioxane US EPA 1624 0.007 0.001 14:38

Comments

All methods reference US EPA methods unless otherwise noted.

ns - Indicates not available / applicable.

Sample analyzed at native pH.

XNG001-002.21\SRF.0809211\ORG_SRF_0809211

20 South Wagner Ri Ann Arber, Michigan Tel. 7347856918 Fa Kichigan Laboratory

Organic Analysis Data Summary Sheet

For: Mr. Gaga Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0809211 #G001-002

Sample Identification: MW-97d 7/20/21

Sample Date: Sample Time; Sampled By: Laboratory Receipt Date: Sample Matrix: 11:47 AM Client 8/9/21

Analyzed By Reporting Limit Parameter Organic Analysis Method Units Result 1,4-Dioxane US EPA 1624 11:55 SLS

Comments

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

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Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0809211 #G001-002

Sample Identification: Red Pond

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix

8/9/21 8:50 AM Client 8/9/21 Water

Reporting Limit Parameter Organic Analysis 1,4-Dioxane Ву Result Date Time US EPA 1624 0.41 0.02 15:19 SLS

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

X1G001-002.21\SRF 0809211\ORG SRF 0809211



Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0809211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
fG001-002 Red Pond 8/9/21 Matrix Spike	1.4 mg/L	1.3 mg/L	1.3 mg/L	6.3

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002			50000 N	0.000
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100.9
Red Pond 8/9/21 Matrix Spike	0.41 mg/L	1.0 mg/L	1.4 mg/L	94.6
Red Pond 8/9/21 Matrix Spike Ouplicate	0.41 mg/L	1.0 mg/L	1.3 mg/L	86.3

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

Comments:

X:\G001-002.21\SRF 0809211\ORG_SRF_0809211

Control Limits:

coveries Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

5 5 5 5 (617.17) Part of the Part o THE TY 8 Transcul C. Pall. Co. 1 to 2000 cles Pec 19 TOT 8/9/21 UIA THO 37.7 2 Elle. Gary स्तित्। स्तित्। स्तित्य राहाय Inenete! 5 Special and the state of the st

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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 USEPA. 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.

1.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

• None





LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF/SDG Number(s): 0810211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/10/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/10/21				
Outfall	8/9/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/10/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/10/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis

Number of Samples

1,4-Dioxane (USEPA 1624) - Urgent TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

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Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

· None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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:

None

Mark Oldong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002.21/CN_0810211.doc





Organic Analysis **Data Summary Sheet**

For: Mr, Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0810211 #G001-002

Sample Identification: EFF-OC-1A Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/10/21 7:48 AM Client 8/10/21 Water

Reporting Limit Units Result Parameter Organic Analysis 1,4-Dioxane US EPA 1624 0.008 0.001 8/10/21

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable,
Sample analyzed at native pH.

rev. 9/7/21



Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0810211 #G001-002

Sample Identification: Outfall 001

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/9/21 8/10/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By	
Organic Analysis								
1.1.00	HO COA AROA		0.000	0.001	B/10/21	11:58	SIS	

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

X10001-002.21\SRF 0810211\ORG SRF 0810211



Organic Analysis **Data Summary Sheet**

Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 97//21
ATS SRF: 0810211 #G001-002

Sample Identification: EFF-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date:

Sample Matrix:

8/10/21 7:50 AM Client 8/10/21

Analysis Date Analyzed By Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units Result SLS US EPA 1624 0.008 0.001 8/10/21 13:39

Comments

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

Sample analyzed at native pH.

X1G001-002-21/SRF 08102111QRG_SRF_0810211

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Quality Assurance / Quality Control **Data Summary**

ATS Project: Pall Corporation Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Ann Arbor Tap Water 8/10/21 Matrix Spisa	0.010 mg/L	0.009 mg/L	0.009 mg/l.	8.4

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002 Laboratory Fortified Blank Ann Arbor Tap Water #1/0/21 Matrix Spike Ann Arbor Tap Water #1/0/21 Matrix Spike Duplicate	<0.001 mg/L <0.001 mg/L <0.001 mg/L	Jon 010.0 Jon 010.0 Jen 010.0	0.010 mg/L 0.010 mg/L 0.009 mg/L	101.6 95.5 87.7

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

Comments:

Control Limits:

Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<20%)

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rev 9/7/21



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF/SDG Number(s): 0811211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/11/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix	
Received 8/11/21				-	
Outfall	8/10/21	Urgent	1,4-Dioxane	Water	
Eff-OC-IA	8/11/21	Urgent	1,4-Dioxane	Water	
Eff-OC-2A	8/11/21	Urgent	1,4-Dioxane	Water	

Upon receipt samples were scheduled for the following analyses.

Number of Samples

1,4-Dioxane (USEPA 1624) - Urgent TAT

3 Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

				CATE/THE	DATE/TIME	MATHOX INDICATE SHAWMANDA	Settines/Shalps Earnal	ST.	510	210		
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Data Review and Approval

CHAIN OF CUSTODY RECORD

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 USEPA. 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.

1.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1634 (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. Samples were reported as mg/L.

Anomalies Noted:

· None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None



QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

• None

Matrix Replicates

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

None

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Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 97/21

ATS SRF: 0811211 #G001-002

Sample Identification: Outfall 001

Sample Date: 8/10/21 Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: na Client 8/11/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.009	0.001	8/11/21	12:12	SLS

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:

None

None

Mackalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0811211,dec





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0811211 #G001-002

Sample Identification: EFF-OC-1A

Sample Date: Sample Time: Sampled By; Laboratory Receipt Date: Sample Matrix:

8/11/21 8:35 AM Client 8/11/21

Method Parameter Organic Analysis US EPA 1624 1,4-Dloxane

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable. Sample analyzed at native pH.

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.
Samplo analyzed at native pH.



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Organic Analysis **Data Summary Sheet**

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0811211

Sample Identification: EFF-OC-2A

Water

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/11/21 8:37 AM Clent 8/11/21

Analyzed By Reporting Limit Method Units Result 1,4-Dloxane US EPA 1624 8/11/21 13:40 SLS

CHAIN OF CUSTODY RECORD

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

Sample analyzed at native pH.

X10001-002.21/SRF 0811211/0/40_SRF_0811211

Course Course Course Course Course Course Course Course 1 1 1 1 5 5 5 5 2 2 2 2 2 Juryof 41 a a a a a 5658 USE PREVIOUS PO 248337 all 3 Samples + Sond results All Samples are Unpreserved,

Keth_Patterson a pall.com.

Quality Assurance / Quality Control **Data Summary**

#G001-002

QC Batch Number: QCORG0811211 Parameter: 1,4-Dioxane (EPA 1624) ATS Project: Pall Corporation Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
/G001-002				
Ann Arbor Tap Water 8/11/21 Matrix Spite	0.010 mg/L	0.010 mg/L	0.010 mg L	2.9

SPIKES and/or QC CHECK SAMPLES Spike Known Analyzed Sample/Analyte Concentration Concentration (percent) G001-002 Laboratory Fortified Blank Ann Arbor Tap Water 8/11/21 Matrix Spike Ann Arbor Tap Water 8/11/21 Matrix Spike Duplica <0.001 mg/L <0.001 mg/L <0.001 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 100.3 105.3 102.3 BLANK ANALYSIS

Sample **Analyzed Concentration** <0.001 mg/L

Comments:

Control Limits:

Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<20%)

X.\G001-002.21\SRF.0811211\ORG. SRF. 0811211

rev 9/7/2

QC Decision



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0816211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following 11 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/16/21, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/16/21				
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
MW-15d	8/9/21	Standard	1,4-Dioxane	Water
MW-15s	8/9/21	Standard	1,4-Dioxane	Water
MW-32	8/10/21	Standard	1,4-Dioxane	Water
MW-4d	8/10/21	Standard	1,4-Dioxane	Water
MW-72d	8/5/21	Standard	1,4-Dioxane	Water
MW-IId	8/11/21	Standard	1,4-Dioxane	Water
MW-100	8/4/21	Standard	1,4-Dioxane	Water
MW-115	8/4/21	Standard	1,4-Dioxane	Water
MW-116	8/4/21	Standard	1,4-Dioxane	Water
MW-81	8/4/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

. 1,4-Dioxane (USEPA 1624) - Urgent TAT

1,4-Dioxane (USEPA 1624) - Standard TAT 10 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

Number of Samples

G001-002.21/CN_0316211.doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 43 days with the following exceptions:

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 (80Ps) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to enauce compliance with the above referenced SOP 3 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 RS 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 by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/l.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

None

G001-002.21/CN_0816211,doc



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-4d 8/10/21 MW-100 8/4/21
- MW-72d 8/5/21 MW-115 8/4/21
- MW-11d 8/11/21
- MW-116 8/4/21

• MW-81 8/4/21

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002-21/CN 0816211 doc

dist.

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

· None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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:

Laboratory Fortified Blanks / Laboratory Control Samples

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

• None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

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

None

None

G001-002.21/CN 0816211.dox





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Paff Corporation 642 South Wagner Road

ATS Project:	Pall Corporation	#G001-0
Report Date:	9/7/21	
ATS SRF:	0816211	100

Sample Identification: Outfall 001 Grab

Sample Time: 11:38 AM Sampled By: Laboratory Receipt Date: Sample Matrix: 8/16/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis		-					
1,4-Dloxane	US EPA 1624	mg/L	0.010	0.001	8/16/21	17:43	SLS

Comments
All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

Sample analyzed at native pH

X1G001-002.21\SRF 0818211\ORG SRF 0818211 tev 9/7/21



Analysis

5:03

Analyzed

Ву

SLS

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211 #G001-002

8/29/21

Sample Identification: MW-15d

Sample Date: Sample Time: Sampled By:

Parameter Organic Analysis 1,4-Dioxane

8/9/21 1:09 PM Client 8/16/21

US EPA 1624

Laboratory Receipt Date: Sample Matrix:

Analysis Reporting Limit Result Method Units

0.005

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

X10001-002.21/SRF-0816211/ORG_SRF_0816211

rev. 9/7/21

280 Smith Wagner Road Ann Arbor, Michigan Lebham Al Tel 724/395-095 Faz. I Michigan Laboratory ID

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pail Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211 #G001-002

Sample Identification: MW-32 Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/10/21 12:21 PM

Reporting Limit Method Parameter Organic Analysis SLS US EPA 1624 0.013 1,4-Dloxane

230 South Wagner Read Ann Arber, Michigan 48103 Tet. 724735-6095 Frv. 734795-3731 Michigan Laborrstoy St. 9604

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211 #G001-002

Sample Identification: MW-15s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Client 8/16/21

8/9/21 2:03 PM

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.003	0.001	8/29/21	5:47	SLS

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X4G001-002-21/SRF 0816211/GRG_SRF_0816211

rev. 9/7/21

220 South Wagner Road Am Advar, Michigan 48103 Fat 734795-0915 Fat 734795-3731 Michigan Laborstory ID: 9664

Organic Analysis Data Summary Sheet

Analyzed By

SLS

rw 9/7/21

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211 #G001-002

Sample Identification: MW-4d

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix 8/10/21 1:42 PM Client 8/16/21 Water

Analysis Date Reporting Limit Parameter Organic Analysis 1,4-Dioxana Method Units Result 7:15 US FPA 1624 0.32 0.01 8/29/21

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable,

Comments

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

rev. 9/7/21

X1G001-602 21\SAF 08162111QRG_SAF_0816211



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0816211 #G001-002

Sample Identification: MW-72d

8/5/21 Client 8/16/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Parameter Organic Analysis

1,4-Dloxane

Water Analyzed By Analysis Date Analysis Time Reporting Limit Method 10:11 US EPA 1624 mg/L 0.51 0.02 8/29/21 SLS

ods reference US EPA methods unless otherwise noted.

X1G001-002 21\SRF 0816211\GRG_SRF_C816211

200 South Wagner Road Ann Arbor, Michigan 45103 Tall, 734793-6995 Faz, 734995-3731 Michigan Laberstory Ro. 9894

Organic Analysis Data Summary Sheet

#G001-002

For: Mr. Gage Trendel

Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/4/21 1:16 PM

Sample Identification: MW-100

Client 8/16/21 Water

Analysis Analysis Analyzed Reporting Limit Date Time 11:39 SLS

200 South Wagner Road Ann Arbar, Birthigan 48133 Feb. 734795-6935 Fee. 734795-5731 Michigan Laboratory Dr. 5624

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0816211 #G001-002

Sample Identification: MW-11d

Sample Date: Sample Time; Sampled By; Laboratory Receipt Date: Sample Matrix:

8/11/21 2:00 PM Client 8/16/21 Water

Ву 10:55 SLS US EPA 1624 1,4-Dioxana

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X10001-002.21ISAF 0818211IORG_SRF_0818211

Sample Identification:

rev. 9/7/21

230 South Wagner Road Arn Adder, Wichigan 48103 Arn Adder, Wichigan 48103 Arn Adder, Wichigan 48103 Michigan Laborriory Dr. 5624 Michigan Laborriory Dr. 5624

Organic Analysis **Data Summary Sheet** #G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date: Sample Time:

Sampled By:

Laboratory Receipt Date: Sample Matrix:

MW-115 8/4/21

Client 8/16/21 Water

Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units Result 12:23 US EPA 1624 0.52 0.01

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211

Comments All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

Comments
All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

X15001-002.21USRF 081521 NORG_BRF_0816211

rev. 9/7/21



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0816211 #G001-002

Sample Identification: MW-116

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/4/21 10:36 AM Client 8/16/21

Parameter Organic Analysis 1,4-Dioxane Ву

Comments

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

X10001-002-21\SRF-0819211\ORG_SRF_0816211

rev. 9/7/21

Quality Assurance / Quality Control **Data Summary**

REPLICATE ANALYSIS

QC Batch Number: QCORG0816211 Parameter: 1,4-Dioxane (EPA 1624)

#G001-002 ATS Project: Pall Corporation

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002		1		1000
Ann Arbor Tap Water &16/21 Matrix Spika	0.010 mg/L	.Tem 010.0	0.010 mg/L	1.6

SPIKES and/or QC CHECK SAMPLES Known Concentration Analyzed Concentration Spike Recovery Sample/Analyte Concentration Gu01-002 Laboratory Fontfied Blank Ann Arbor Tap Water 8/18/21 Matrix Spike Ann Arbor Tap Water 8/18/21 Matrix Spike Duplicate <0.001 mg/L <0.001 mg/L <0.001 mg/L 98.9 97.7 99.2 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L

BLANK ANALYSIS

QC Decision Sample **Analyzed Concentration** #G001-002 Laboratory Reagent Blank

Comments:

Control Limits:

Laboratory Centrol Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

290 South Wagner Road Ann Arbor, Michigan 48103 Feb. 734798-0015 Faz. 734 With Jan Laborston 734

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Report Date: ATS SRF: Pall Corporation 9/7/21 0816211 #G001-002

Sample Identification: MW-81

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date:

Samole Matrix

8/4/21 9:16 AM Client 8/16/21 Water

Reporting Limit Ву Parameter Organic Analysis Result Time 1.4-Dioxane US EPA 1624 0.01 8/29/21 13:51 SLS

Comments
All methods reference US EPA methods unless otherwise noted.

X1G221-02221ISRF 081621110RG_SRF_0816211



293 South Wagner Road Ann Arber, Michigan 44103 Tel. 73493-5935 Fax. 73493-57211 Michigan Laboratory ID: 8604

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0827212 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 MW-81 84/21 Matrix Spike	0.31 mg/L	0.33 mg/L	0.32 mg/L	7.5

SPIKES and/or QC CHECK SAMPLES Known Splke Analyzed Concentration Concentration (percent) Sample/Analyte 3001-002 3001-002 Laboratory Fortified Blank MW-81 8/4/21 Matrix Spike MW-81 8/4/21 Matrix Spike Duplicate 0.010 mg/L 0.20 mg/L 0.20 mg/L 0.010 mg/L 0.31 mg/L 0.33 mg/L 100.0 85.3 97.3

BLANK ANALYSIS Analyzed Concentration QC Decision Sample G001-002 Laboratory Reagent Blank <0.001 mo/L

Comments: Calculations perfor ons performed prior to rounding. Control Limits:

coveries Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<20%)



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0817211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following five samples that were received at Ann Arbot Technical Services, Inc (ATS) on 8/17/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/17/21				
Eff-OC-1A	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/17/21	Urgent	1,4-Dioxane	Water
Outfall	8/16/21	Urgent	1,4-Dioxane	Water
Outfall	8/11/21	Urgent	1,4-Dioxane	Water
Red Pond	8/17/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis

1,4-Dioxane (USEPA 1624) - Urgent TAT

Number of Samples

1,4-Dioxane (USEPA 1624) - Standard TAT

 4 Samples • I Sample

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 43 days with the following exceptions:

None

G001-002.21/CN_0317211.doc

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Data Review and Approval

CHAIN OF CUSTODY RECORD

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 (80Ps) specific to the ATS Laboratory, as required by USEPA. 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 RS EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

<u>1.4-Dioxane Analysis (GC/MS)</u>: Samples were analyzed by purge and trap GC/MS in accordance with USEPA method [624 (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. Samples were reported as mg/L.

None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

• None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

G001-002.21/CN_0817211.doc



Laboratory Reagent Blanks

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

Laboratory Fortified Blanks / Laboratory Control Samples

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

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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:

Red Pond 8/17/21

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

G001-002.21/CN 0817211.doc





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0817211 #G001-002

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/17/21 7:52 AM Client 8/17/21

Reporting Limit Units Result Parameter Organic Analysis Method SLS 15:17 US EPA 1624 8/17/21 1,4-Dloxane 0.008 0.001



336 South Wagner Read Arthur Bridgen 68103 Tell 278035 South 8 Fee 724055-3726 Michigan Laboratory B: 8624

Organic Analysis Data Summary Sheet

For: Mr, Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0817211 #G001-002

Sample Identification: Eff-OC-1A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/17/21 7:50 AM Client 8/17/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis	Analyzed By
Organic Analysis							
1,4-Dioxana	US EPA 1624	mg/L	0.009	0.001	8/17/21	14:33	SLS

All methods reference US EPA methods unless otherwise noted, na - indicates not available / applicable.

Sample analyzed at native pH.

rev. 9/7/21



Organic Analysis Data Summary Sheet

For: Mr. Gaga Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0817211

Sample Identification: Outfall 001

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix 8/16/21 8/17/21

Analysis Time Reporting Limit Method Result Date By B/17/21 16:02 SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.
Sample analyzed at native pH.

X1G031-092.21\SRF.0817211\ORG_SRF_0817211

Comments
All methods reference US EPA methods unless otherwise no na - Indicates not available / applicable. Sample analyzed at native pH.

X10001-002 2115RF 081721110RG_SRF_0817211



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0817211 #G001-002

Sample Identification: Outfall 001

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/11/21 8/17/21

Reporting Limit Method Ву SLS

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable. Sample analyzed at native pH.

X1G001-002.21/SRF 0417211\ORG SRF 0417211

rev. 9/7/21

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0817211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples REP

			(percent)
0.010 mg/L	0.010 mg/L	0.010 mg/L	1.6
	0.010 mg/L	0.010 mg/L 0.010 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L

SPIKES and/or QC CHECK SAMPLES Sample/Analyte

Known Splke Analyzod Recovery Concentration (percent) Concentration Concentration G001-002 Laboratory Fortified Blank
Ann Arbor Tap Water 8/17/21 Matrix Spike
Ann Arbor Tap Water 8/17/21 Matrix Spike Duplicate -0.001 mg/L -1.001 mg/L -1.001 mg/L 0.010 mg/L 0.010 mg/L 98.9 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 102.0

BLANK ANALYSIS QC Decision Sample Analyzed Concentration #G001-002 Laboratory Respent Blank <0.001 mg/L

Comments:

Control Limits:

coveries Laboratory Centrol Sample Recovery (65 - 115%) Matrix Spike Recovery (60 - 120%)

Relative Range Replicates (<20%)

299 South Wagner Read Ann Arbert, Michigan 49162 Tel. 7347956095 Fee. 734595-3731 Michigan Liberthown

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Report Date: ATS SRF: Pall Corporation 9/7/21 0817211 #G001-002

Sample Identification: Red Pond

Sample Date: Sample Time: Sampled By; Laboratory Receipt Date: Sample Matrix

8/17/21 7:54 AM Client 8/17/21 Water

Reporting Limit Parameter Organic Analysis 1,4-Dioxane Time Ву Method US EPA 1624 0.01 8/17/21 17:30 SLS

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

X1G001-002.21\SRF.0817211\DRG_SRF_0817211

UNBONATORY INFORMATION	мутон	DATEMENT	PATCHOLIA	JONE SHEPPE	A (Checs one	SECTION SECTIONS SECTION (CASE and / TRACTORO HAMBER (T) (It appeared	NAMEDICE	(I' system				
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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0818211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following six samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/17/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/17/21				
Outfall	8/17/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/18/21	Urgent	1,4-Dioxane	Water
Eff-OC-IA	8/18/21	Urgent	1,4-Dioxane	Water
MW-18d	8/17/21	Standard	1,4-Dioxane	Water
MW-35	8/17/21	Standard	1,4-Dioxane	Water
MW-66	8/17/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

1.4-Dioxane (USEPA 1624) - Urgent TAT

Number of Samples

3 Samples

1,4-Dioxane (USEPA 1624) - Standard TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

G001-002.21/CN_0818211.doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Laboratory Reagent Blanks

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

· None

Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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:

· None

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

that D.

/ September 7, 2021

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0818211.doc



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 USPBA. 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 Analyzis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Cas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1.4-Dioxane. Samples were reported to project the project of the control o specific reporting limits. Samples were reported as mg/L.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corp
Report Date: 9/7/21

ATS SRF: 0818211 #G001-002

Sample Identification: Outfall 001 8/17/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: 8/18/21 Sample Matrix

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxano	US EPA 1624	mg/L	0.009	0.001	8/18/21	11:15	SLS

Comments

All methods reference US EPA methods unless otherwise noted na - Indicates not available / applicable. Sample analyzed at native pH.

X1G001-002.21\SRF 6818211\ORG_SRF_0\$18211



For; Mr, Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0818211 #G001-002

Sample Identification: Eff-OC-1A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/18/21 na Client 8/18/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dloxano	US EPA 1624	mg/L	0.008	0.001	8/18/21	12:00	SLS

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / applicable,

Sample analyzed at native pH.

X1G031-002.21\SRF.0816211\ORG. SRF.0816211

164, 9/7/21



Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date:

ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0818211 #G001-002

Sample Identification: MW-18d 8/17/21 2:32 PM Client 8/18/21

Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Reporting Limit Parameter Organic Analysis 1,4-Dioxane US EPA 1624 0.029 0.001 16:55 mg/L

200 South Wagner Road Ann Arbor, Michigan 44163 Tel. 734763-6785 Fee. 734 Weilingen Laborators

Organic Analysis **Data Summary Sheet**

For: Mr, Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0818211 #G001-002

Sample Identification: Eff-OC-2A

8/18/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis					7.5		
1.4-Dioxana	US EPA 1624	ma/L	0.011	0.001	8/18/21	12:44	SLS

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

X1G031-002.21USRF.0818211\ORG_SFF_0818211



Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0818211 #G001-002

Sample Identification: MW-35

Sample Date: Sample Time: Sampled By; Laboratory Receipt Date: Sample Matrix:

8/17/21 1:17 PM Client 8/18/21

Water

Analysis Analysis Analyzed Reporting Limit Parameter Organic Analysis Method Units Result Date Time Ву 1,4-D'oxene US FPA 1824 0.002 0.001 SLS

Comments

All methods reference US EPA methods unless atherwise noted.

Comments

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



For: Mr. Gago Trendel Pail Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 977/21
ATS SRF: 0818211

Sample Identification: MW-66

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/17/21 12:06 PM 8/18/21

Reporting Limit Method Result US EPA 1624 SLS

Comments
All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

X10001-002 21\SRF 0818211\ORG_SRF_0818211

Quality Assurance / Quality Control

QC Batch Number: QCORG0830211 Parameter: 1,4-Dioxane (EPA 1624)

Data Summary #G001-002 ATS Project: Pall Corporation Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TW-20 8/16/21 Matrix Spike	1.3 mg/L	1.2 mg/L	1.2 mg/L	5.8
		11		

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002				
Laboratory Fortified Blank	<0.001 mg/L	J.gm 010.0	0.009 mg/L	90.7
TW-20 8/18/21 Matrix Splke	0.54 mg/L	J.gm 08.0	1.3 mg/L	93.2
TW-20 8/18/21 Matrix Spike Duplicate	0.54 mg/L	0.80 mg/L	1.2 mg/L	84.2
	1 1			

BLANK ANALYSIS Analyzed Concentration QC Decision Sample #G001-002 Laboratory Reagent Blank

Comments:

Control Limits:

Laboratory Control Sampla Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)

lative Renge Replicates (<20%)

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0818211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002				
Ann Arbor Tap Water 8/18/21 Matrix Spike	0.008 mg/L	0.008 mg/L	0.008 mg/L	0.6
CONTROL SAMON CO. CHICAN SAMON CO.				

Sample/Analyte	Known	Spike	Analyzed	Recovery
	Concentration	Concentration	Concentration	(percent)
#G001-002 Laboratop Fortifed Blank Ann Arbor Tap Waler &H8/21 Matrix Spike Ann Arbor Tap Waler &H8/21 Matrix Spike Duplicate	<0.001 mg/L <0.001 mg/L <0.001 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0,009 mg/L 0,003 mg/L 0,609 mg/L	91.4 82.4 61.9

BLANK ANALYSIS Sample G001-002 Laboratory Reagent Blank <0.001 mg/L

Comments: Calculations performed prior to rounding.

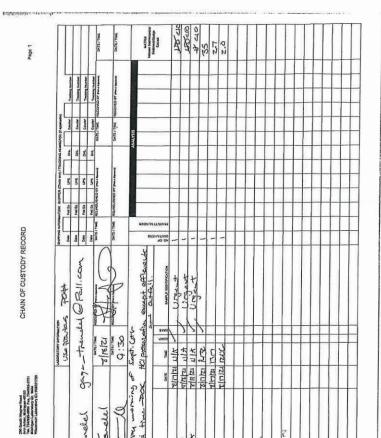
Control Limits:

Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

lative Range Replicates (<20%)

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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0819211

Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following three samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/19/21, and associated matrix-specific QA/QC:

Client Sample Identification		Sample Date	Requested Turn Around Time	Analysis	Matrix
Re	eceived 8/19/21				
	Outfall	8/18/21	Urgent	1,4-Dioxane	Water
	Eff-OC-IA	8/19/21	Urgent	1,4-Dioxanc	Water
	Eff-OC-2A	8/19/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses

Number of Samples

1.4-Dioxane (USEPA 1624) - Urgent TAT

3 Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

G001-002 21/CN 0819211 dos

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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 / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD'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 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:

None

Markaletong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021





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 USEPA. 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 Jaboratory'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 by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

None
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Organic Analysis **Data Summary Sheet**

For: Mr. Gaga Trendel Pall Corporation 642 South Wagner Ros Ann Arbor, MI 48103

#G001-002

Sample Identification: Outfall 001

Sample Date: Sample Time: Sampled By: 8/18/21

Laboratory Receipt Date:

Water

Sample Matrix

Reporting Limit Result Parameter Organic Analysis Method Units 1,4-Dloxane US EPA 1624 0.009

Comments
All methods reference US EPA methods unless otherwise noted,
na - Indicates not available / applicable.
Sample analyzed at native pH.

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ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0819211 #G001-002

Sample Identification: Eff-OC-1A

For: Mr. Gage Trendel

Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/19/21 7:53 AM

Client 8/19/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.009	0.001	8/19/21	11:07	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

X1G001-032.21\SRF 0819211\ORG_SRF_0819211

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Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0819211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21

#G001-002

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
G001-002				
Ann Arbor Tep Water 8/19/21 Matrix Splike	0.011 mg/L	0.010 mg/L	0.010 mg/L	2.2

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002				
Laboratory Fortifed Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	101.0
Ann Arbor Tap Water 8/19/21 Matrix Spike	<0.001 mg/L	0.010 mg/L	0.011 mg/L	108.3
Ann Arbor Tap Water 8/19/21 Matrix Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	104.0
	1 1	-		
	1 1			
	1			

BLANK ANALYSIS

Sample Analyzed Concentration QC Decision #G001-002 Laboratory <0.001 mg/L

Comments:

Control Limits:

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

250 South Wagner Road Ann Arbor, Michigan (4510) ANN Arbor, Michigan (4510) Michigan Laboratory (1504)

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0819211

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/19/21 7:54 AM Client 8/19/21

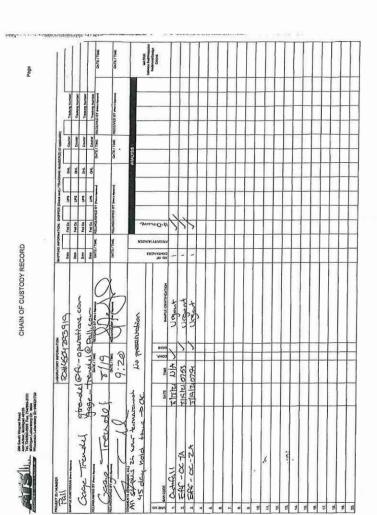
Water

Reporting Limit 1,4-Dloxana US EPA 1624 0.007 11:52 SLS

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH,

X19001-002.21\SRF.0819211\ORG_SRF_0819211





LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0820211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following eight samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 3/20/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/20/21				
Eff-OC-1A	8/20/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/20/21	Urgent	1,4-Dioxane	Water
Outfall	8/19/21	Urgent	1,4-Dioxane	Water
TW-9	8/18/21	Standard	1,4-Dioxane	Water
TW-17	8/18/21	Standard	1,4-Dioxane	Water
TW-14	8/18/21	Standard	1,4-Dioxane	Water
TW-10	8/18/21	Standard	1,4-Dioxane	Water
TW-20	8/18/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Analysis

Number of Samples

1,4-Dioxane (USEPA 1624) - Urgent TAT

 3 Samples
 5 Sample + 1 Matrix Spike + 1 Matrix Spike Duplicate 1,4-Dioxane (USEPA 1624) - Standard TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

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Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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:

Laboratory Fortified Blanks / Laboratory Control Samples

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

Matrix Spikes and Spike Duplicates

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

None None

Matrix Replicates

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

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 USEPA. 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

<u>I.4-Dioxane Analysis (GC/MS)</u>: Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

• None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

• None

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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:

- TW-9 8/18/21
- TW-17 8/18/21
- TW-10 8/18/21

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

dr. Slu



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0820211 #G001-002

Sample Identification: Outfall 001

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/19/21 na Client 8/20/21 Water

Reporting Limit Result Units Parameter Organic Analysis SLS US EPA 1624 0.008 10:33 1,4-Dioxane 0.001 8/20/21

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pti.

X1G001-002.21ISRF 0820211VORG_ERF_0820211

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Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Report Date: ATS SRF: Pall Corporation 9/7/21 0820211 #G001-002

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/20/21

8:12 AM Client 8/20/21

Analysis Date Analysis Time Analyzed By Reporting Limit Method Result Parameter Organic Analysis Units 12.02 SLS 1,4-Dloxane US EPA 1624 0.007 0.001 8/20/21

230 South Wagner Road Ann Arban, Michigan 45103 Tal. 734795-0955 Fax. 7347 Michigan Laboratory Dr. 66

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Report Date: ATS SRF: Pall Corporation 9/7/21 0820211 #G001-002

Sample Identification: Eff-OC-1A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/20/21 8:13 AM Client 8/20/21 Water

Parameter Organic Analysis SLS 1,4-Dioxane US EPA 1624

Comments

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

Sample analyzed at netive pH.

1ev. 9/7/21



Organic Analysis Data Summary Sheet #G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wegner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-9

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/18/21 9:25 AM Client 8/20/21

Reporting Limit Method Units Result Date Time Ву SLS

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

Comments

All methods reference US EPA methods unless otherwise noted, no - Indicates not available / applicable,
Sample analyzed at native pH.

X10001-002.21\SRF.0820211\ORG_SRF_0820211

X10201-002-21/5RF 0820211/0RG_SRF_0820211



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation

Report Date: 97/21

ATS SRF: 0820211

#G001-002

Sample Identification: TW-17

8/18/21 9:20 AM Cilent 8/20/21 Water

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Analysis Date Analysis Time Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Result Ву 20:36 SLS US EPA 1624

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X10001-002.21\SRF-0820211\ORG_SRF_0820211

rev. 9/7/21

220 South Wagner Rood Am Athor, Wallgan 48103 Tel. 720-730-608 Feer 724-95-3731 Wallfan Laborstony D; 4634

Organic Analysis **Data Summary Sheet**

Analysis Time

22:04

Analyzed By

SLS

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0820211

#G001-002

Analysis Date

8/30/21

Reporting Limit

0.01

Sample Identification: TW-10

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/18/21 9:15 AM Client 8/20/21 Water

Parameter Organic Analysis 1,4-Dioxana Result Units Method US EPA 1624 0.62

250 South Wagner Rand Ann Arbert, Michigan 48169 Fat. 734995-6015 Feer, 734995-52791 Michigan Laboratory ID: 8604

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0820211 #G001-002

Sample Identification: TW-14

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/18/21 9:18 AM Client 8/20/21 Water

Analysis Time Analyzed By Reporting Limit Parameter Organic Analysis 1,4-Dioxano Method Units Result Date US EPA 1624 0.085 0.001 8/30/21 21:20 SLS

Comments

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / applicable,

X 1/2001-002 21/SRF 0820211/GRG SRF 0820211

200 South Wegner Road Arm Arbox, Wichigan 48103 Tel. 724995-6095 Fer. 734995-3721 Wichigan Laboratory (D): 8604

Organic Analysis Data Summary Sheet

#G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0820211

Sample Identification: TW-20

Sample Date: Sample Time: Sampled By:

8/18/21 9:10 AM Client 8/20/21

Laboratory Receipt Date: Sample Matrix: Water

Analysis Date Analyzed By Reporting Limit Parameter Organic Analysis 1,4-D'oxans Method Units Result Time US EPA 1624 0.54 0.01 22:48 SLS

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X1G001-602.21/SRF 0820211/IORG_SRF_0820211

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



Quality Assurance / Quality Control **Data Summary**

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
HG001-002 Ann Arbor Tep Water 8/20/21 Matrix Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	3.4
SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laborstoy Fortfied Blank Ann Arbor Tag Waler #20/21 Matrix Spike Ann Arbor Tag Waler #20/21 Matrix Spike Duplicale	Jem 100.0> Jem 100.0> Jem 100.0>	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	100.7 105.2 101.7
BLANK ANALYSIS Sample		Analyzed	Concentration	QC Decision
#G001-002 Laboratory Reagent Blank		<0.0	001 mg/L	Acceptable

Comments:

Control Limits:

Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

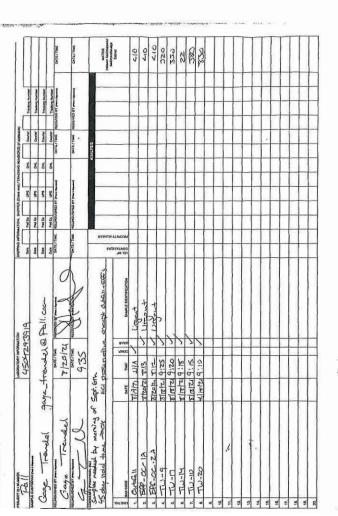
Relative Range Replicates (<20%)

X:\G001-002.21\SRF 0820211\ORG_SRF_0820211

CHAIN OF CUSTODY RECORD

X:\G001-002.21\SRF.0820211\ORG_SRF_0820211

QC Decision





Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0830211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples REPLICATE ANALYSIS Relative Replicate #2 Sample Replicate #1 Mean Range (percent) G001-002 TW-20 8/18/21 Matrix Spike 1.3 mg/L 1.2 mg/L 1.2 mg/l

SPIKES and/or QC CHECK SAMPLES Known Concentration Splke Analyzed concentration Sample/Analyte Laboratory Fortified Blank TW-20 8/18/21 Matrix Spike TW-20 8/18/21 Matrix Spike Duplicate 0.010 mg/l 0.54 mg/L 0.54 mg/L John 08.0 John 08.0 1.3 mg/L 1.2 mg/L 93.2 84.2 BLANK ANALYSIS

#G001-002 <0.001 mg/L

Comments:

Sample

Control Limits:

coveries Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%) elative Range Replicates (<20%)

Analyzed Concentration



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21 SRF / SDG Number(s): 0823211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following one sample that was received at Ann Arbor Technical Services, Inc. (ATS) on 8/23/21, and associated matrix-specific QA/QC:

Cli	ent Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Rec	ceived 8/23/21				
	Outfall	8/22/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Number of Samples

1,4-Dioxane (USEPA 1624) - Urgent TAT

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

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 USEFA. 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).

G001-002.21/CN 0823211.doc

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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 by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:
None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

None

G001-002.21/CN_0823211.doc





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation 9/7/21

ATS SRF: 0823211 #G001-002

Sample Identification: Outfall 001

8/22/21 Sample Date: Sample Time: Sampled By: Laboratory Rec

Mathod	Units	Result	Reporting Limit	Analysis Date
			200	
US EPA 1624	mg/L	0.008	0.001	8/23/21
	700000000000000000000000000000000000000	Method Units	Method Units Result	Method Units Result Reporting Limit

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / applicable Sample analyzed at native pH.

X1G001-002-21/SRF 0823211\ORG_SRF_0823211

rev. 9/7/21

Matrix Spikes and Spike Duplicates

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

None

None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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.

• None

Mackalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002.21/CN_0823211.doc





Quality Assurance / Quality Control **Data Summary**

Results of QA Samples run concurrently with project samples

Replicate #1	Replicate #2	Mean	Relative Range (percent)
0.010 mg/L	0.010 mg/L	0.010 mg/L	2.6

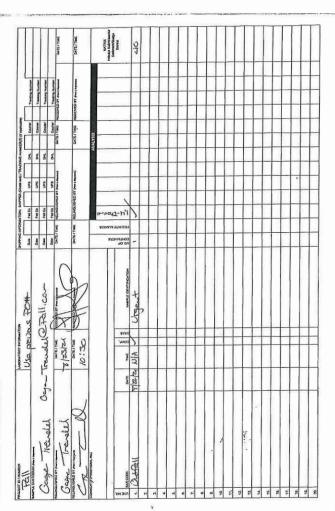
Sample/Analyte	Known	Spike	Analyzed	Recovery
	Concentration	Concentration	Concentration	(percent)
#G001-002 Laboratory Fortfied Blank Ann Arbor Tap Water 8/23/21 Matrix Spike Ann Arbor Tap Water 8/23/21 Matrix Spika Duplicate	<0.001 mg/L <0.001 mg/L <0.001 mg/L	0.910 mg/L 0.910 mg/L 0.910 mg/L	0.009 mg/L 0.010 mg/L 0.010 mg/L	93.1 100.8 98.3

BLANK ANALYSIS Analyzed Concentration QC Decision #G001-002 Laboratory <0.001 mg/L

Control Limits:

coveries Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<2014)



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 USEPA. 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 RS EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

1.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

· None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

• None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:





LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21

SRF / SDG Number(s): 0826211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following six samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/26/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/26/21				
MW-126d	8/25/21	Standard	1,4-Dioxane	Water
MW-126s	8/25/21	Standard	1,4-Dioxane	Water
MW-59d	8/25/21	Standard	1,4-Dioxane	Water
MW-59s	8/25/21	Standard	1,4-Dioxane	Water
MW-39s	8/25/21	Standard	1,4-Dioxane	Water
MW-39d	8/25/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

1,4-Dioxane (USEPA 1624) - Standard TAT 6 Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

G001-002-21/CN 0826211 doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Laboratory Reagent Blanks

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

with the follo • None

Laboratory Fortified Blanks / Laboratory Control Samples

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

• None

Matrix Spikes and Spike Duplicates

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

Matrix Replicates

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

None

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:

None
None

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002 21/CN 0826211.doc





For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0826211 #G001-002

Sample Identification: MW-126d

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/25/21 9:16 AM Client 8/26/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							77
1,4-Dloxane	US EPA 1624	mg/L	< 0.001	0.001	8/31/21	18:25	SLS

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X10001-002-21\SRF-0826211\ORG_SRF_0826211

rev. 9/7/21

200 South Wagner Road An Arber, Michigan 48103 Tel: 74495-695 Frr. 73495-3721 Michigan Laborstory ID: 6654

Organic Analysis Data Summary Sheet ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0826211 #G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Identification: MW-59d Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/25/21 11:48 AM Client 8/26/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis		N					
1.4-Diovana	119 EPA 1624	mad	×0.001	0.001	8/31/21	10-53	212

Comments
All methods reference US EPA methods unless atherwise noted.
na - Indicates not available / applicable.

210 South Wagner Road Arn Arbor, Michigan 45 fol Tel. 721078-6919 Fee. 7131 Michigan Laboraton Tr.

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 542 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0826211

Sample Identification: MW-126s

Water

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/25/21 10:30 AM Client 8/26/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1 4-Dlovana	US EPA 1824	mad	10.001	0.001	8/24/24	10.00	61.0

Comments

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

X1G001-002.2115RF.0828211.ORG_SRF_0828211

rev. 9/7/21

Organic Analysis Data Summary Sheet

For: Mr. Gage Trandel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0826211 #G001-002

Sample Identification: MW-59s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/25/21 12:57 PM Client 8/26/21

Analysis Date Analysis Time Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units Result Ву SLS

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.



#G001-002

ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0826211

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/25/21 2:20 PM

Sample Identification: MW-39s

Time SLS US EPA 1624 1,4-Dioxane

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X10001-022.21/SRF 0825211/GRG_SRF_0825211

299 South Wagner Road Ann Arbor, Michigan 41/03 Tel. 134/195-0995 Fax. 734/95-3731 Michigan Laborator (ID: 9864 Washington (ID: 9863)11/29

rav. 9/7/21

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0831211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation
Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Relative Replicate #1 Replicate #2 Mean Range (percent) 0.3 4.2 mg/L TW-24 8/3/21 Matrix Spike

SPIKES and/or QC CHECK SAMPLES Known Splke Analyzed Recovery Concentration (percent) Concentration Sample/Analyte Concentration G001-002 G001-002 Laboratory Fort/fed Blank TW-24 8/3/21 Matrix Spike TW-24 8/3/21 Metrix Spike Duplicate <0.001 mg/L 1.8 mg/L 1.8 mg/L 0.010 mg/L 4.2 mg/L 4.2 mg/L 97.4 119.1

BLANK ANALYSIS Analyzed Concentration QC Decision Sample <0.001 mg/L Acceptable

Comments: Calculations performed prior to rounding.

Control Limits:

Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<20%)

299 South Wingnar Road Ann Arbor, Michigan 48103 Tal. 724/984699 5 7ev. 734/98453731 Michigan Laborriony 80: 9624

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pell Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pell Corporation
Report Date: 9/7/21
ATS SRF: 0826211 #G001-002

Sample Identification: MW-39d

Sample Date: Sample Time: Sampled By:

8/25/21 Client 8/26/21

Laboratory Receipt Date: Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Date	Time	Ву
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.020	0.001	8/31/21	22:06	SLS

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

X1G001-002.21/SRF 0525211/ORG SRF 0525211

Page 4 4 4 5 5 5 5 CHAIN OF CUSTODY RECORD 8 8 8 8 alex efall rear POST. I コードルード USe dot 222 7 15/2 Con MU-VE63 MU-S93 MU-S93 MU-S93 MU-S93 MU-S93 MU-S93 MU-S93



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0827211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following soven samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/27/21, and associated matrix-specific QA/QC:

mples				
Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21				
Outfall-Grab	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/26/21	Urgent	1,4-Dioxane	Water
Outfall	8/26/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/27/21	Urgent	1,4-Dioxane	Water
Red Pond	8/27/21	Urgent	1.4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Number of Samples

1,4-Dioxane (USEPA 1624) - Urgent TAT

7 Samples + 1 Matrix Spike + 1 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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

G001-002.21/CN_0803211.doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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 / Laboratory Control Samples

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

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates et 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.

Mark alexong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002.21/CN 0803211.doc



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 USEPA. 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 RS EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

I.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

• None

G001-002.21/CN 0803211.doc





Organic Analysis Data Summary Sheet

Time

By

Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827211 #G001-002

Date

Sample Identification: Outfall - Grab

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/27/21

Reporting Limit Method Units Result

US EPA 1624 80701 11-20 SLS

All methods reference US EPA methods unless otherwise noted.

Sample analyzed at native pH.

X1G001-002.2115RF 082721110RG_SRF_0827211



For: Mr. Gaga Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation #G001-002 Report Date: 9/7/21 ATS SRF: 0827211

Sample Identification: Eff-OC-1A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 7:25 PM 8/27/21

Reporting Limit Date Parameter Organic Analysis 1,4-Dioxane Result Time By 0.001 8/27/21 9:52 SLS

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable,
Sample analyzed at native pH.

X19901-002.2115RF 082721110RG_6RF_0327211

213 Booth Wagnar Road Arm Arban, Hickingan 41103 Tel. 723-725-6055 Fer. 7247-935-3734 Hickingan Laboratory ID: 9404

rev. 9/7/21

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0827211 #G001-002

Sample Identification: Outfall Sample Date: 8/26/21 Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: na Client 8/27/21

Analysis Analysis Reporting Limit Date Method Units Time By SLS 8/27/21 12:04

250 South Wagner Read
Arm After, Entiring on 68 (52)
Arm After

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827211 #G001-002

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/26/21 7:25 PM Client 8/27/21 Water

Reporting Limit Result Parameter Organic Analysis 8/27/21 10:36 SLS 1,4-Dloxane US EPA 1624 mg/L 0.005 0.001

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

X1G001-002.21\SRF 682721FIORG_SRF_0827211

rev. 9/7/21

250 South Wagner Read Am Action, Weldgard 45103 Tel 273475-093 Fer. 734795-3724 Meldigan Laboratory ID: 95054

Organic Analysis **Data Summary Sheet**

#G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Report Date: ATS SRF: Pall Corpor 9/7/21 0827211

Sample Identification: Eff-OC-1A 8/27/21 7:00 AM Client 8/27/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: Water

Analysis Date Analysis Time Reporting Limit Parameter Organic Analysis Method Units Result 8:24 SLS 1,4-Dloxane US EPA 1624 0.007 0.001 8/27/21

Comments

All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable. Sample analyzed at native pH.

Comments

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / applicable,
Sample analyzed at native pH.

X1G001-C02.21\SRF.0827211\ORG_SRF_0827211



Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827211 #G001-002

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date:

Sample Matrix:

8/27/21 7:00 AM 8/27/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis			_				
1,4-Dioxane	US EPA 1624	mg/L	0.004	0.001	8/27/21	9:08	SLS

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable. Sample analyzed at native pH.

X10001-002-21/SRF-0827211/ORG_SRF-0827211

rev. 9/7/21

Quality Assurance / Quality Control **Data Summary**

290 South Wagner Road
Ann Arbor, Michigan 41(03)
Tel. 73/M978-0375 Far. 73/498-3731
Michigan Laboratory ID: 9404
Wascania Laboratory ID: 94034
Wascania Laboratory ID: 94034 QC Batch Number: QCORG027211
Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 Red Pond 8/27/21 Matrix Splike	0.95 mg/L	0.98 mg/L	0.98 mg/L	0.8

SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002 Laboratop Fortfed Blank Red Pond 8/27/21 Matrix Spike Red Pond 8/27/21 Matrix Spike Duplicate	<0.001 mg/L 0.31 mg/L 0.31 mg/L	0.010 mg/L 0.80 mg/L 0.80 mg/L	0.010 mg/L 0.98 mg/L 0.98 mg/L	101.2 84.9 63.8

BLANK ANALYSIS Analyzed Concentration QC Decision Sample ₹G001-002 <0.001 mg/L Laboratory Reagent Blank

Comments: Calculations performed prior to rounding.

X:\G001-002.21\SRF 0827211\ORG_SRF_0827211

Control Limits:

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

200 South Wagner Road Ann Adoc, Michigan 45103 Tell. 724/9154/905 Fez. 734/915-3731 Michigan Laborstory Ro. 6604

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827211 #G001-002

Sample Identification: Red Pond

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Metrix:

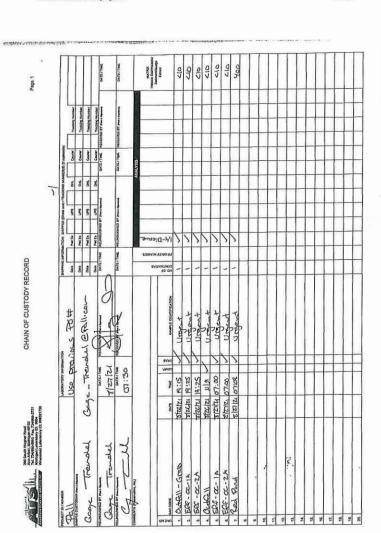
8/27/21 7:08 AM Client 8/27/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.31	0.01	8/27/21	13:22	SLS

Comments

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

tev. 9/7/21





LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21

SRF / SDG Number(s): 0827212 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following twenty samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/27/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21				
MW-34d	8/26/21	Standard	1,4-Dioxane	Water
MW-34s	8/26/21	Standard	1,4-Dioxane	Water
MW-38s	8/26/21	Standard	1,4-Dioxane	Water
MW-38d	8/26/21	Standard	1,4-Dioxane	Water
MW-52d	8/26/21	Standard	1,4-Dioxane	Water
MW-521	8/26/21	Standard	1,4-Dioxane	Water
TW-17	8/27/21	Standard	1,4-Dioxane	Water
TW-14	8/27/21	Standard	1,4-Dioxane	Water
TW-10	8/27/21	Standard	1,4-Dioxane	Water
TW-9	8/27/21	Standard	1,4-Dioxane	Water
TW-20	8/27/21	Standard	1,4-Dioxane	Water
TW-22	8/27/21	Standard	1,4-Dioxane	Water
TW-28	8/27/21	Standard	1,4-Dioxane	Water
LB-4	8/27/21	Standard	1,4-Dioxane	Water
TW-23	8/27/21	Standard	1,4-Dioxane	Water
TW-21	8/27/21	Standard	1,4-Dioxane	Water
TW-18	8/27/21	Standard	1,4-Dioxane	Water
PW-1	8/27/21	Standard	1,4-Dioxane	Water
Dolph	8/27/21	Standard	1,4-Dioxane	Water
TW-24	8/27/21	Standard	1,4-Dioxane	Water

G001-002-21/CN 0802211 doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

• None

Matrix Spikes and Spike Duplicates

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

· None

Matrix Replicates

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

None

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Upon receipt samples were scheduled for the following analyses.

1,4-Dioxane (USEPA 1624) - Standard TAT

Number of Samples

20 Samples + 1 Matrix Spike + 1 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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

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 USEPA. 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 RS 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 by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

G001-002.21/CN_0502211.doc



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:

- TW-17 8/27/21 • TW-20 8/27/21
- TW-10 8/27/21 • TW-22 8/27/21
- TW-9 8/27/21 • TW-28 8/27/21

- LB-4 8/27/21 • TW-18 8/27/21
- TW-23 8/27/21 • PW-1 8/27/21
- TW-21 8/27/21 Dolph 8/27/21

• TW-24 8/27/21

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

/ September 7, 2021

Philip B. Simon (Laboratory Director)

Mark alixong

of isther



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-34d

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/26/21 8:59 AM Client 8/27/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis		-		-17			
1,4-Dlovane	US EPA 1624	mg/L	<0.001	0.001	9/1/21	1:02	SLS

Comments

All methods reference US EPA methods unless etherwise noted, na - indicates not available / applicable.

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rev. 9/7/21

200 South Wagner Read Am Arbert, Warlings 45103 Tel. 7187856955 Far. 7345785-3728 Warlings Laboratory ID: 6104

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: MW-38s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/26/21 11:23 AM Client 8/27/21 Water

Analyzed Reporting Limit Parameter Organic Analysis Method Units Result Date Time Ву 1,4-Dloxane US EPA 1624 <0.001 0.001 9/1/21 2:30 SLS

250 South Wagner Road Ann Arter, Michigan 451503 Tel. 7714574995 Fee. 734 Michigan Laborator

Organic Analysis Data Summary Sheet

For: Mr. Gaga Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-34s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: 8/26/21 10:04 AM Client 8/27/21

Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dloxana	US EPA 1624	mg/L	<0.001	0.001	9/1/21	1:46	SLS

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

X1G001-002.21\SRF.082721Z.DRG. SRF.0827212

rev. 9/7/21



Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212

Sample Identification: MW-38d

> 8/26/21 12:33 PM Cllent 8/27/21

Water

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Analysis Date Analysis Reporting Limit Parameter Organic Analysis Result Ву Method Units Time 1,4-Dloxane US EPA 1624 0.033 0.001 9/1/21 3:14 SLS

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

Comments

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



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: MW-52d

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/26/21 1:54 PM Cflent 8/27/21

Parameter	Method	Units	Result	Reporting Limit	Date	Time	By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	<0.001	0.001	9/1/21	3:59	SLS

Comments

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

X10001-002 21\SRF 0827212\ORG_SRF_0827212

200 South Wagner Rose
Ann Arbar, Michigan 64
Tul. 734995-095 Fax.
Michigan Laboratory ID

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

TW-17

8/27/21 Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matric 8:20 AM Client 8/27/21 Water

Parameter Organic Analysis 1,4-Dioxane US EPA 1624 mg/L

200 South Way not Raid Ann Aday, Mindgen 6532 Ann Aday, Mindgen 6532 Ann Aday Mindgen 6532 Ann Aday Mindgen 6532 Mindgen Laboratory ID; 8634

3:05 PM

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: MW-52

Sample Date:

Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: Cfient 8/27/21 Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis	Analyzed By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.001	0.001	9/1/21	4:43	SLS

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

X1G031-002.21\SRF.0827212\DRG_SRF_0827212

rev. 9/7/21

290 South Wagner Road
Ann Arbor, Michigan 48139
Ann Arbor, Michigan 48

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-14 8/27/21

Sample Date: Sample Time; Sampled By: Laboratory Receipt Date: Sample Matrix:

Client 8/27/21

Analysis Time Analyzed Analysis Date Reporting Limit Parameter Organic Analysis 1,4-Dioxane Units Result Ву Method 6:11 SLS US FPA 1624 0.094 0.001 9/1/21

Comments
All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

Comments

All methods reference US EPA methods unless otherwise noted.

rev. 9/7/21

X1G001-002.21\SRF.0927217.DRG_5RF_C927212



13:15

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-10

Sample Date: Sample Time: Sampled By:

1.4-Dloxane

8/27/21 8:30 AM Client 8/27/21

US EPA 1624

0.66

mg/L

0.01

Laboratory Receipt Date: Sample Matrix: Water Method Parameter Organic Analysis

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

X1G001-002.21\SRF-0827212\ORG_SRF_G827212

rev. 9/7/21

250 South Wagner Rasid Ann Arbor, Michigan 45101 Tal 734/955-095 Faz 734 Michigan Laboratory Dr. 6

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-20 Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/27/21 8:40 AM Client 8/27/21

Water

Reporting Limit Method Units Parameter Organic Analysis 9/1/21 US EPA 1624 0.60 1,4-Diaxane

200 South Wagner Read Ann Arbor, Michigan 48103 Ann Arbor, Michigan 48103 (et. 7) 24595-4499 Fac. 7) 24555-5721 Et. 7) 24595-4499 Fac. 7) 2555

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation

Report Date: 9/7/21

ATS SRF: 0827212 #G001-002

Sample Identification: TW-9

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/27/21 Ollent 8/27/21 Water

Reporting Limit Parameter Organic Analysis 1,4-Dioxana Method SLS 13.59 0.43 US EPA 1624 ma/L 0.01 9/1/21

Comments
All methods reference US EPA methods unless otherwise noted.
ns - Indicates not available / applicable.

X1G031-032.211SRF 0927212-QRG_SRF_0927212

rev. 9/7/21

Organic Analysis

200 South Wagner Bord Ann Arbor, Michigan 6133 Tel, 2746956000 Fee, 724095-2721 Michigan Laborstony D: 5024

Data Summary Sheet #G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0627212

Sample Identification: TW-22 8/27/21 8:50 AM

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Cflent 8/27/21 Water

Analysis Time Analysis Date Reporting Limit Ву Method Units Result 9/1/21 15:33 SLS US EPA 1624 0.46 0.02

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable,

X10001-002.21\SRF.0827212\ORG_SRF_0827212

Comments
All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

tev. 9/7/21



For: Mr. Gage Trendel

Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-28

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/27/21 8:55 AM

Client 8/27/21 Water

Analysis Analysis Analyzed Reporting Limit Parameter Organic Analysis Method Units Result Date Time Ву 1,4-Dioxane US EPA 1624 0.62 0.02 9/1/21 19:57 SLS

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

X10001-002.2115RF 0827217/ORG_6RF_0627212

rev. 9/7/21

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-23

8/27/21 10:20 AM

Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: Client 8/27/21 Water

Analysis Date Reporting Limit Units Result Time Ву 250 South Wegner Road Ann Arbor, Michigan 4110 Tel. 734785-6919 Fez. 734 Weghang Laborat

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: LB-4

8/27/21 10:15 AM Sample Date: Sample Time: Sampled By: Client

Laboratory Receipt Date: Sample Matrix: 8/27/21

Analysis Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units Result Ву US EPA 1624 0.01 9/1/21 20:41 SLS

Comments

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

X1G001-002.21\SRF.0827212/ORG_SRF_0827212

rev. 9/7/21

Data Summary Sheet #G001-002

Organic Analysis

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212

Sample Identification: TW-21

8/27/21 10:30 AM Sample Date: Sample Time:

Sampled By: Laboratory Receipt Date: Sample Matrix: Client 8/27/21

Analysis Analysis Time Reporting Limit Units Result Date Ву Method US EPA 1624 0.24 0.01 9/1/21 22.09 SLS

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

Comments
All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.



22.53

Ву

SLS

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-18

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/27/21 10:35 AM Client 8/27/21 Water

Reporting Limit Parameter Organic Analysis 1,4-Dioxane Result US EPA 1624

Comments

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / apolicable.

X1G001-002-21\SRF-0827212'CRG_SRF_0827212

rev. 9/7/21

10V 9/7/21

203 South Wagner Read Ann Actor, Michigan & Tel. 72493-0935 Fex. 7 Michigan Laborstory Dr.

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: Dolph Sample Date:

8/27/21 10:45 AM Client 8/27/21 Water

Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Reporting Limit Parameter Organic Analysis Units Result US EPA 1624 0.12 1,4-Dioxane

219 South Wagner Road
Ann Arbar, Litchigan 4163
Ann Arbar, Litchigan 4163
Ref 1744956995 Fee, 734995-3724
Michigan Laborston 97, 9654

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: PW-1

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/27/21 10:40 AM Client 8/27/21

Analysis Analysis Time Analyzed By Reporting Limit Method Units Date 0.53 0.01 9/1/21 23:38 SLS

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

X1G001-002.21\SRF.0827212'GRG_SRF_0827212

209 South Wagner Read
Ann Adner, Michigan 41103
Ann Adner, Michigan 41103
Ann Adner, Michigan Laboratory Dr. 9654
Michigan Laboratory Dr. 9654

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827212 #G001-002

Sample Identification: TW-24

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/27/21 11:00 AM Client 8/27/21

Analysis Analysis Analyzed Reporting Limit Parameter Organic Analysis 1,4-Diorans Date Method Units Result Time By US EPA 1624 2.1 15:16 SLS

Comments

All methods reference US EPA methods unless otherwise noted.

Comments

All mathods reference US EPA mathods unless otherwise noted.

na - Indicates not available / applicable

X10001-002.2115RF 0827212/QRG_SRF_0827212



Quality Assurance / Quality Control **Data Summary**

ATS Project: Pall Corporation Report Date: 9/7/21

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TVV-24 &4721 Matrix Spike	4.2 mg/L	4.2 mg/L	4.2 mg/L	0.3

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002 Laboratop Fortifed Blank TW-24 8/3/21 Matrix Spha TW-24 8/3/21 Matrix Spha Duplicate	<0.001 mg/L 1.8 mg/L 1.8 mg/L	0.010 mg/L 2.0 mg/L 2.0 mg/L	0.010 mg/L 4.2 mg/L 4.2 mg/L	97.4 119.1 119.6

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

Comments:	
Calculations performed prior to rounding.	

Control Limits:

Laboratory Control Sample Recovery (85 - 115%)
Matrix Spfike Recovery (80 - 120%) Relativa Range Replicates (<20%)

(AG001-002.21\SRF 0827212\ORG_SRF_0827212

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Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0901211 Parameter: 1,4-Dioxene (EPA 1624

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TVV-22 8/27/21 Matrix Spika	0.81 mg/L	0.81 mg/L	0.81 mg/L	0.5
SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#G001-002 Laboratory Fortified Blank TW-22 8/27/21 Matrix Spike TW-22 8/27/21 Matrix Spike Duplicate	<0.001 mg/L 0.46 mg/L 0.46 mg/L	0.010 mg/L 0.40 mg/L 0.40 mg/L	0.010 mg/L 0.81 mg/L 0.81 mg/L	99.9 87.6 86.6

BLANK ANALYSIS		T 00 D 1 L
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

omments:	Control Limi
	-

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

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Data Transmittal Cover Page

Project Name:

Pall Corporation

ATS Project Number:

G001-002

ATS Report Number(s):

Org_SRF_Aug_PO9621

Client PO Number: 4504859621

Project Description:

This data report contains the results of 28 water samples, received by ATS during the months of August and September, to be analyzed for 1,4 Dioxano.

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 GAVIG Information are available for Inspection and suid at the laboratory open request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been

otrendel@fv-operations.com Recipient: Mr. Gage Trendel Email: FAX Number: No. of Pages (Including cover pg.): 60 Sarah Stubblefield Email: Sarah, Stubble field@Ann Arbor Technical Services.comFAX Number: 734-995-3731 Senior Chemist / Lab Manager Additional Message: Date: 9/8/21 Slaned:

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Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Outfall	8/31/21	Urgent	1,4-Dioxano	Water
MW-40s	8/31/21	Standard	1,4-Dioxane	Water
MW-40d	8/31/21	Standard	1,4-Dioxane	Water
MW-64	8/31/21	Standard	1,4-Dioxane	Water
NOW 104	8/31/21	Condend	1.4.Dioyana	Mater

Upon receipt samples were scheduled for the following analyses.

na		

- 1,4-Dioxane (USEPA 1624) Urgent TAT
- Number of Samples
- 1,4-Dioxane (USEPA 1624) Standard TAT
- 16 Samples
 12 Samples + I Matrix Spike + I 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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

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 USEPA. All data are peer and management reviewed to easure 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).



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21 SRF / SDG Number(s):

Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following 28 samples that were received at Ann Arbor Technical Services, Inc. (ATS) during the months of August and September under PO number 4504859621, and associated matrix-specific QA/QC:

Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/27/21	1			1 1 2 2 2 2 2 2 2
Eff-OC-IA (13:45)	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A (13:45)	8/27/21	Urgent	1,4-Dioxane	Water
Received 8/28/21				
Outfall	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/28/21	Urgent	1,4-Dioxane	Water
Received 8/30/21				
Eff-OC-1A	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/30/21	Urgent	1,4-Dioxane	Water
Outfall	8/28/21	Urgent	1,4-Dioxana	Water
Outfail	8/29/21	Urgent	1,4-Dioxage	Water
Red Pond	8/30/21	Urgent	1,4-Dioxane	Water
MW-60	8/27/21	Standard	1,4-Dioxano	Water
4401 Park West	8/27/21	Standard	1,4-Dioxane	Water
MW-20	8/27/21	Standard	1,4-Dioxane	Water
110 Parkland Plaza	8/27/21	Standard	1,4-Dioxane	Water
MW-36	8/27/21	Standard	1,4-Dioxane	Water
Received 8/31/21			(C)	
Outfall	8/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-IA	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/30/21	Urgent	1,4-Dioxane	Water
MW-31	8/28/21	Standard	1,4-Dioxane	Water
4742 Park Road	8/28/21	Standard	1,4-Dioxane	Water
5005 Jackson Road	8/28/21	Standard	1,4-Dioxane	Water
Received 9/1/21				
Eff-OC-1A	9/1/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	9/1/21	Urgent	1,4-Dioxane	Water

G001-002-21/CN AugustPO 9621.doc

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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.

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/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021











LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/6/21

SRF / SDG Number(s): 0827213 Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following two samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/27/21, and associated matrix-specific QA/QC:

Client Sample Identification		Sample Identification Sample Date Requested Turn		Analysis	Matrix	
R	eceived 8/27/21					
	Eff-OC-1A	8/27/21	Urgent	1,4-Dioxane	Water	
	Eff-OC-2A	8/27/21	Urgent	1,4-Dioxane	Water	

Upon receipt samples were scheduled for the following analyses.

Analysis

1,4-Dioxane (USEPA 1624) - Urgent TAT

Number of Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of fits report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

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 USPA. 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). G001-002.21/CN_0827213.dcc

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Matrix Spikes and Spike Duplicates

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

Matrix Replicates

matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates tet 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:

None

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G001-002.21/CN 0827213.dec

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

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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.

1.4-Dioxane Analysis (GCMS): Samples were analyzed by purge and trap GCMS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

• None

OA/OC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 / Laboratory Control Samples

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

None

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Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827213 #G001-002

Sample Identification: Eff-OC-1A

Sample Date: Sample Time: Sampled By: 8/27/21 Client 8/27/21 Laboratory Receipt Date: Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/27/21	14:33	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.
Sample enalyzed at netive pH.

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For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0827213 #G001-002

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/27/21 1:45 PM Client 8/27/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/27/21	15:17	SLS

Comments

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / applicable. Sample analyzed at native pH.

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rev. 9/7/21

Party וא-טימגריי 3 8 8 8 W CHAIN OF CUSTODY RECORD (BP3.11. にまれて We 1 toth 1 Theusla! \$ \21/2/2 \$ \27/2/2 \$ \27/2/2 당전 당근 2/22/2 12/12/8 -8-1A



Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG027211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
G001-002 Red Pond 8/27/21 Matrix Spike	0.98 mg/L	0.98 mg/L	0.93 mg/L	0.8

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
//G001-002 Laboratopy Forlfied Blank Red Pond 8/27/21 Mathic Spike Red Pond 8/27/21 Mathic Spike Duplicate	<0.001 mg/L 0.31 mg/L 0.31 mg/L	0.010 mg/L 0.80 mg/L 0.80 mg/L	0.010 mg/L 0.98 mg/L 0.98 mg/L	101.2 84.9 83.8

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

Comments:

Control Limits:

ecoveries
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
elative Range
Replicates (<20%)

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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21

SRF / SDG Number(s): 0828211 Client PO Number: 4504293919

Case Narrative Summary

This case narrative applies to the following two samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/28/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/28/21				
Outfall	8/27/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/28/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/28/21	Urgent	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

1,4-Dioxane (USEPA 1624) - Urgent TAT

Number of Samples 3 Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

Note:

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 (80Ps) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced 80P's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

G001-002.21/CN_0828211.doc

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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

<u>I.4-Dioxane Analysis (GC/MS)</u>: Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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 exception
None

G001-002.21/CN_0828211.dec





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

#G001-002 ATS Project: Pall Corporation
Report Date: 9/7/21 ATS SRF: 0828211

Sample Identification: Outfall Sample Date: 8/27/21 8/28/21 Water

Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Analysis Analyzed Reporting Limit Paramoter Organic Analysis 1,4-Dioxane Date Time SLS

Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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:

• None

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Philip B. Simon (Laboratory Director)

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

/ September 7, 2021

G001-002.21/CN_0928211.doa





Organic Analysis Data Summary Sheet

#G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Ros Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0828211

Sample Identification: Eff-OC-1A 8/28/21

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matric

9:40 AM 8/28/21 Water

Analyzed Reporting Limit Parameter Organic Analysis Time Ву SLS US EPA 1624 1,4-Dioxane

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

Y 1/2001-001 25/58/F 0424215/08/0 58/F 0424211

mple analyzed at native pH

Comments

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

rev. 9/7/21



r:	Mr. Gage Trendel
	Pall Corporation
	642 South Wagner Road
	Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 977/21
ATS SRF: 0828211

Sample Identification: Eff-OC-2A

8/28/21 9:40 AM Sample Date: Sample Time: Sampled By: Client Laboratory Receipt Date: Sample Matrix: 8/28/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis	The second second	-	The second second				
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/29/21	3:35	SLS

CHAIN OF CUSTODY RECORD

Comments

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

Sample analyzed at native pH.

X1G001-002-21/5RF 0929211/10RG - 5RF_C628211

oromate X 1,4 Dioxans Patterson and final report to Sue Peters. X SFF-0C-1X EDA; 1,4-dioxane-none Keith PO4504293919 data to h send daily

QC Batch Number: QCORG0827212 Parameter: 1,4-Dioxane (EPA 1624)

Quality Assurance / Quality Control **Data Summary**

> ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

		(percent)
mg/L 0.33 r	mg/L 0.32 m	g/L 7.5
1	1 mg/L 0.33	ingl. 033 mgl. 032 m

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
HG001-002 Laboratop Fortified Blank MW-81 B4721 Matrix Spika MW-81 B4421 Matrix Spika Duplicata	<0.001 mg/L 0.14 mg/L 0.14 mg/L	0.010 mg/L 0.20 mg/L 0.20 mg/L	0.010 mg/L 0.31 mg/L 0.33 mg/L	100.0 85.3 97.3
BLANK ANALYSIS				

Comments: Calculations performed prior to roundin

Sample

Control Limits:

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

Analyzed Concentration

<0.001 mg/L

#G001-002

rev 9/7/.

QC Decision



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 9/7/21 SRF / SDG Number(s): 0830211 Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following ten samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/30/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/30/21				
Eff-OC-1A	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/30/21	Urgent	1,4-Dioxane	Water
Outfall	8/28/21	Urgent	1,4-Dioxane	Water
Outfall	8/29/21	Urgent	1,4-Dioxane	Water
Red Pond	8/30/21	Urgent	1,4-Dioxane	Water
MW-60	8/27/21	Standard	1,4-Dioxane	Water
4401 Park West	8/27/21	Standard	1,4-Dioxane	Water
Mw-20	8/27/21	Standard	1,4-Dioxane	Water
110 Parkland Plaza	8/27/21	Standard	1,4-Dioxane	Water
MW-36	8/27/21	Standard	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

. 1,4-Dioxane (USEPA 1624) - Urgent TAT

Number of Samples

1,4-Dioxane (USEPA 1624) - Standard TAT

. 5 Samples

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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report on the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

G001-002.21/CN_0830211.dcc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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 USPBA. 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

<u>I.4-Dioxane Analysis (GC/MS)</u>: Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

G001-002.21/CN_0830211.doc





Organic Analysis **Data Summary Sheet**

rev. 9/7/21

For: Mr. Gage Trendel Pail Corporation 842 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: Eff-OC-1A Sample Date: Sample Time: Sampled By: 8/30/21 7:35 AM Laboratory Receipt Date: Sample Matrix

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.006	0.001	8/30/21	11:27	SLS

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:

Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The 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:

• Red Pond 8/30/21

Mark alixong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ Sentember 7, 2021

G001-002.21/CN_0330211.doc





Organic Analysis **Data Summary Sheet**

#G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Pall Corporation 9/7/21 0830211

Sample Identification: Eff-OC-2A

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: 8/30/21 Client 8/30/21

Reporting Limit Method Units Result US EPA 1624 0.005 12:11 SLS

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

Sample analyzed at native pH,

All methods reference US EPA methods unless otherwise noted. ns - Indicates not available / applic Sample analyzed at native pH.



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Organic Analysis Data Summary Sheet

For: Mr. Gaga Trendel Pail Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: Outfall

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/28/21 na Cilent 8/30/21 Water

Parameter	Method	Units	Result	Reporting Limit	Date	Time	By
Organic Analysis							
1,4-Dioxane	US EPA 1624	mg/L	0.006	0.001	8/30/21	12:55	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at net/re pH.

X4G001-002.21\SRF.0830211\GRG_SRF_0830211

107. 9/7/21

Organic Analysis Data Summary Sheet

For: Mr. Gaga Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: Red Pond

Sample Date: Sample Time: Sampled By: Laboratory Rec Sample Matrix: 8/30/21 7:30 AM Client 8/30/21 Water celpt Date:

Analysis Date Reporting Limit Parameter Organic Analysis 1,4-Dioxane Units Result

290 South Wagner Road Ann Arbor, Etchique 40103 (at. 734096-985 Fee. 734091-3721 Washigan Laberstony St. 1981-

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wegner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: Outfall

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/29/21 na Client 8/30/21 Water

Analysis Time Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units Result Date Ву US FPA 1624 8/30/21 13:39 SLS

Comments

All methods reference US EPA methods unless otherwina - Indicates not available / applicable.

Sample analyzed at native pH.

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rev. 9/7/21

Ann Arbor, Michigan

ENTARY Electron Michigan

Extra Control Michigan Laboratory

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: MW-60

Sample Date: 8/27/21 Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 3:45 PM Cllent 8/30/21 Water

Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Ву BLS

Comments

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

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: 4401 Park West

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/27/21 2:31 PM Client 8/30/21 Water

Analysis Date Analysis Time Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxane Ву

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

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SLS

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Ann Arber, Michigan 45101
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Organic Analysis Data Summary Sheet ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Identification: 110 Parkland Plaza 8/27/21 11:17 AM

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: Client 8/30/21 Water

Analysis Date Time Parameter Organic Analysis US EPA 1824 1,4-Dioxans

290 South Wagner Read Arm Arbert, Michigan 48103 Hall, 734-935-993 Fzz, 734-995-9731 Michigan Labertaing No. 1864

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211 #G001-002

Sample Identification: MW-20

Sample Date: Sample Time: Sampled By:

8/27/21 1:09 PM Client 8/30/21 Water

Laboratory Receipt Date: Sample Matrix: Analysis Reporting Limit Parameter Organic Analysis 1,4-D'oxane Ву Method Date Time US EPA 1624 0.001 9/2/21 18:12 SLS

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

X1G001-002.21/SRF 0830211/ORG SRF 0830211

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Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0830211

Sample Identification: MW-36

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/27/21 9:46 AM Client 8/30/21

Analyzed Reporting Limit Parameter Organic Analysis 1,4-Dioxana Method Units Result Time Ву US EPA 1624 0.001 9/2/21 19:40 SLS

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

Comments

All methods reference US EPA methods unless otherwise noted.

na - indicates not available / applicable.

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Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0830211
Parameter: 1,4-Dloxane (EPA

#G001-002

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#6001-002 TWI-20 8/18/21 Motrix Spika	1.3 mg/L	1.2 mg·L	1.2 mg/L	5.8

SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
(G001-002 Laboratory Fortfed Blank TW-20 8/18/21 Matrix Spike TW-20 8/18/21 Matrix Spike Duplicate	<0.001 mg/L 0.54 mg/L 0.54 mg/L	0.010 mg/L 0.80 mg/L 0.80 mg/L	0.009 mg/L 1.3 mg/L 1.2 mg/L	90.7 93.2 84.2
BLANK ANALYSIS				

Comments:	
Calculations performed prior to rounding.	

Control Limits:

coveries Leboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%) Relative Range Replicates (<20%)

Analyzed Concentration

<0.001 ma/L

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QC Decision

X:\G001-002.21\SRF 0830211\ORG_SRF_0830211

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0902211
Parameter: 1,4-Dloxane (EPA 1624)

#G001-002 ATS Project: Pall Corporation Report Date: 9/7/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
(G001-002 MW-10d 8/31/21 Matrix Spika	0.59 mg/L	0.55 mg/L	0.57 mg/L	7.4
SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)

Laboratory Fortified Blank	<0.001 mg/L	0.009 mg/L	0.009 mg/L	92.3
MW-10d 8/31/21 Matrix Spike	0.23 mg/L	0.40 mg/L	0.59 mg/L	91.6
MW-10d 8/31/21 Matrix Spike Duplicate	0.23 mg/L	0.40 mg/L	0.55 mg/L	81.0
	1 1			
	1 1	1		
	1			
	1 1		1	
	1 1	1	1	
	1 1	- 1		

BLANK ANALYSIS	1 1 10 10	QC Decision
Sample	Analyzed Concentration	QC Decision
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:	
Calculations performed prior to rounding.	

Control Limits:

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

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LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21 SRF / SDG Number(s): 0831211 Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following ten samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 8/31/21, and associated matrix-specific QA/QC:

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
Received 8/31/21				
Outfall	8/30/21	Urgent	1,4-Dioxane	Water
Eff-OC-1A	8/31/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	8/31/21	Urgent	1,4-Dioxane	Water
MW-31	8/30/21	Standard	1,4-Dioxane	Water
4742 Park Rd.	8/30/21	Standard	1,4-Dioxane	Water
5005 Jackson Rd.	8/30/21	Standard	1.4-Dioxane	Water

n receipt samples were scheduled for the following analyses

An	alysis	Nu	unber of Samples
	1,4-Dioxane (USEPA 1624) - Urgent TAT		3 Samples
	1,4-Dioxane (USEPA 1624) - Standard TAT		3 Samples

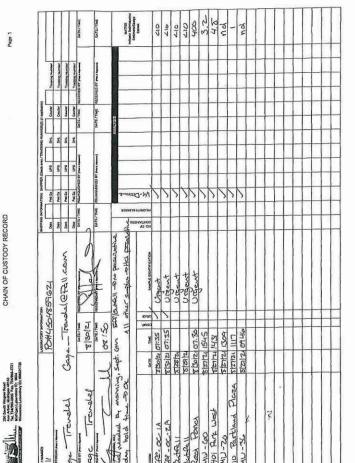
Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

G001-002.21/CN_0831211.doc

Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731



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 USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOPs 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 RS EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

Sample Analysis

I.4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

QA/QC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

None

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Organic Analysis **Data Summary Sheet**

#G001-002

For: Mr. Gage Trendel	ATS Project;	Pall Corporation	
Pall Corporation	Report Date:	9/7/21	
642 South Wagner Road	ATS SRF:	0831211	
Ann Arbor, MI 48103			

Outfall	
8/30/21	
na	
Client	
8/31/21	
Water	
	8/30/21 na Client 8/31/21

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis	Carlo Control		14,000				
1,4-Dioxans	US EPA 1624	mg/L	0.006	0.001	8/31/21	13:21	SLS

Laboratory Reagent Blanks

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

Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

• None

Matrix Replicates

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

• None
• 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:

• None

Markalitong

/ September 7, 2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002.21/CN_0831211.doc





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0831211 #G001-002

Sample Identification: Eff-OC-1A

Sample Date: Sample Time: Sampled By: 8/31/21 6:55 AM Client 8/31/21 Laboratory Receipt Date: Sample Matrix Water

Analysis Date Reporting Limit Units Result Method Ву Parameter enic Analysis SLS US EPA 1624 8/31/21 11:53 1.4-Dioxane mg/L 0.005 0.001

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable. Sample enalyzed at native pH,

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Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

ray 9/6/21



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0831211 #G001-002

Sample Identification: Sample Date:

Eff-OC-2A

Sample Using: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/31/21 6:55 AM Client 8/31/21 Water

Analysis Analysis Analyzed Reporting Limit Units Result Method Date Time Ву 1,4-D'oxane US EPA 1624 0.007 0.001 8/31/21 12:37 SLS

Comments All methods r

All methods reference US EPA methods unless otherwise noted. na - Indicates not available / applicable. Sample analyzed at native pH.

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Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0831211 #G001-002

Sample Identification: 4742 Park Rd.

8/30/21 10:58 AM

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: Client 8/31/21

Analyzed Reporting Limit Parameter Organic Analysis Method Units Result Date Time By 1,4-Dloxans US EPA 1624 9/2/21 23:20 SIS

200 South Wegner Road Ann Arbor, Michigan (61)32 Tal. 718/931-6195 Fee. 721-6735-3731 Michigan Labeston D. Michigan

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0831211 #G001-002

Sample Identification: MW-31

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/30/21 9:31 AM Client 8/31/21 Water

Analyzed By Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Units US EPA 1624 22:36 SLS 9/2/21

Comments
All methods reference US EPA methods unless otherwise noted.

X10001-002-2115RF-083121110RG_SRF_0831211

Sample Identification:



Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

ATS Project: Report Date: ATS SRF:

Pell Corporation 9/7/21 0831211

12:31 PM

8/30/21

5005 Jackson Rd.

Analysis Date Analysis Time Analyzed By Reporting Limit Method Units Result US EPA 1624 0.013 0:04 SLS 1,4-Dioxane mg/L 0.001 9/3/21

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.



Quality Assurance / Quality Control **Data Summary**

#G001-002

REPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#G001-002 TW-22 8/27/21 Matrix Spike	0.81 mg/L	0.81 mg/L	0.81 mg/L	0.5
				14
SPIKES and/or QC CHECK SAMPLES				

SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
(G001-002 Laboratory Fortfed Blank TW-22 8/27/21 Matrix Spike TW-22 8/27/21 Matrix Spike Duplicate	<0.001 mg/L 0.46 mg/L 0.46 mg/L	0.010 mg/L 0.40 mg/L 0.40 mg/L	0.010 mg/L 0.81 mg/L 0.81 mg/L	99.9 87.6 86.5
BLANK ANALYSIS	An and a second			

Sample	Analyzed Concentration	of a manufacture
#G001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:	
Calculations performed prior to rounding.	

Control Limits:

coveries Laboratory Control Sample Recovery (65 - 115%) Matrix Spika Recovery (60 - 120%)

Relative Range Replicates (<20%)

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rev 9/7/21

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Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0902211 Parameter: 1,4-Dioxane (EPA 1624)

#G001-002

Results of QA Samples run concurrently with project samples

0.55 mg/L	0.57 mg/L	7.4

SPIKES and/or QC CHECK SAMPLES Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
/G001-002 Laborato/priotified Blank MW-10d 6/31/21 Matrix Spike MW-10d 6/31/21 Matrix Spike Dupficate	<0.001 mg/L 0.23 mg/L 0.23 mg/L	0.009 mg/L 0.40 mg/L 0.40 mg/L	0.009 mg/L 0.59 mg/L 0.55 mg/L	923 91.6 81.0

BLANK ANALYSIS Sample	Analyzed Concentration	QC Decision	
#G001-002 Laboratory Resgent Blank	<0.001 mg/L	Acceptable	

Comments:	
Calculations performed prior to rounding	

Control Limits:

coveries Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%)

Relative Range Replicates (<20%)

LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002 Report Date: 9/7/21 SRF / SDG Number(s): 0901211 Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following seven samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/1/21, and associated matrix-specific QA/QC:

mples	Caralla Data	Requested Turn Around Time	Analysis	Matrix
Client Sample Identification	Sample Date	Requested Furn Around Time	Analysis	Moun
Received 9/1/21				
Eff-OC-IA	9/1/21	Urgent	1,4-Dioxane	Water
Eff-OC-2A	9/1/21	Urgent	1,4-Dioxane	Water
Outfall	8/31/21	Urgent	1,4-Dioxane	Water
MW-40s	8/31/21	Standard	1,4-Dioxane	Water
MW-40d	8/31/21	Standard	1,4-Dioxane	Water
MW-64	8/31/21	Standard	1,4-Dioxans	Water
MW-104	8/31/21	Standard	1.4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses.

Number of Samples

. 1,4-Dioxane (USEPA 1624) - Urgent TAT

3 Samples

1,4-Dioxane (USEPA 1624) - Standard TAT

4 Samples + 1 Matrix Spike + 1 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. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

None

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Consultants in Chemistry & Environmental Science 290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

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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 USPA. 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 RS 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 by purge and trap GC/MS in accordance with USEPA 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. Samples were reported as mg/L.

Anomalies Noted:

None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions: None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

None

OA/OC Batch Summary

Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:

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Organic Analysis **Data Summary Sheet**

For:	Mr. Gage Trendel
	Pall Corporation
	642 South Wagner Road
	Ann Arbor, MI 48103

ATS Project:	Pall Corporation	#G001-002
Report Date:	9/7/21	
ATS SRF:	0901211	

Sample Identification:	Eff-OC-1A

Sample Date:	9/1/21
Sample Time:	7:00 AM
Sampled By:	Client
Laboratory Receipt Date:	9/1/21
Sample Matrix:	Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis							
1,4-Dioxana	US EPA 1624	mg/L	0.005	0.001	9/1/21	10:19	SLS

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

Sample ensiyzed at native pH.

rev. 9/7/21

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:

Laboratory Fortified Blanks / Laboratory Control Samples

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

None

Matrix Spikes and Spike Duplicates

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

• None

Matrix Replicates

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

None

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:

Markalitong

Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon (Laboratory Director)

/ September 7, 2021

G001-002.21/CN 0901211.doc





Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Ro Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0901211

Sample Identification: Eff-OC-2A

Sample Date: 9/1/21 Sample Cate, Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 7:00 AM Client 9/1/21

Paramoter Organic Analysis US EPA 1624 mg/L 0.007 0.001 1,4-Dioxane

All methods re

hods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.



8/31/21

na Client 9/1/21

Water

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 977/21
ATS SRF: 0901211 #G001-002

Sample Identification: Outfall

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

Parameter	Method	Units	Result	Reporting Limit	Date	Time	By
Organic Analysis							
1,4-Dloxane	US EPA 1624	mg/L	0.006	0.001	9/1/21	11:47	SLS

Comments
All methods reference US EPA methods unless otherwise noted.
na - Indicates not available / applicable.
Sample analyzed at native pH.

X10001-002.21\SRF-0901211\ORG_SRF_0901211

200 South Wagner Road Ann Arbor, Ill chilgran 64(10) Tel. 734(1955) 50(9) Fez. 734(78) Michigan Laboratory ID; 66(4)

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pail Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Data: 9/7/21
ATS SRF: 0901211 #G001-002

Sample Identification: MW-40d Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/31/21 12:54 PM Client 9/1/21

Water

Units Parameter Organic Analysis US EPA 1624 1,4-Dioxane <0.001

200 South Wagner Read Ann Arbar, Michigan 45103 Yul. 7247954095 79z. 734795-3738 Michigan Laboratory 10; 6604

Organic Analysis **Data Summary Sheet**

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21

ATS SRF: 0901211 #G001-002

Sample Identification: MW-40s

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix:

8/31/21 2:05 PM Client 9/1/21

Analysis Date Reporting Limit Method Units Result SLS 9/3/21 0:48 US EPA 1624 0.001

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable,

X1G001-002.21ISRF 0901211/ORG_SRF_0101211

250 South Wigner Road
Are Artes, Michigan 48103
Tel. 720536095 Fer. 734595-3231
Michigan Laberstey ID: 9504

Organic Analysis Data Summary Sheet

For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103 ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0901211 #G001-002

Sample Identification: MW-64

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matric 8/31/21 11:18 AM Client

9/1/21 Water

Analysis Analyzed Reporting Limit Parameter Organio Analysis 1,4-Dioxane Date Time Ву SLS

Comments

All methods reference US EPA methods unless otherwise noted, na - Indicates not available / applicable.

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

rev. 9/7/21

X1G001-022-21/SRF 09012111/ORG_SRF_0901211



For: Mr. Gage Trendel Pall Corporation 642 South Wagner Road Ann Arbor, MI 48103

ATS Project: Pall Corporation
Report Date: 9/7/21
ATS SRF: 0901211 #G001-002

Sample Identification: MW-10d

Sample Date: Sample Time: Sampled By: Laboratory Receipt Date: Sample Matrix: 8/31/21 9:39 AM 9/1/21

Reporting Limit Parameter Organic Analysis 1,4-Dioxane Method Time Ву US EPA 1624 3:00 sts

Comments

All methods reference US EPA methods unless otherwise noted.

na - Indicates not available / applicable.

X1G001-002-21USRF-09012111/CRG_SRF_0001211

rev. 9/7/21

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0902211
Parameter: 1,4-Dloxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS Relative Replicate #1 Replicate #2 Mean Range #G001-002 MW-10d 8/31/21 Matrix Splike

SPIKES and/or QC CHECK SAMPLES Known Splke Analyzed Recovery Sample/Analyte Concentration Concentration (percent) G001-002 Laboratory Fortified Blank MW-10d 8/31/21 Matrix Spike MW-10d 8/31/21 Matrix Spike Duplicate <0.001 mg/L 0.23 mg/L 0.23 mg/L 0.009 mg/L 0.40 mg/L 0.40 mg/L 0.009 mg/L 0.59 mg/L 0.55 mg/L 91.6 81.0

BLANK ANALYSIS Analyzed Concentration QC Decision #G001-002 ry Reagent Blank <0.001 mg/L Acceptable

Comments: Calculations performed prior to rounding.

Control Limits:

coveries Laboratory Control Sample Recovery (85 - 115%) Matrix Spike Recovery (80 - 120%) Relativa Range Replicates (<20%)

Quality Assurance / Quality Control **Data Summary**

QC Batch Number: QCORG0901211 Parameter: 1,4-Dioxane (EPA 1624)

ATS Project: Pall Corporation Report Date: 9/7/21 #G001-002

Results of QA Samples run concurrently with project samples

EPLICATE ANALYSIS Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
3001-002 TW-22 8/27/21 Matrix Splina	0.81 mg/L	0.81 mg/L	0.61 mg/L	0.5

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	(percent)
#G001-002		100000000000000000000000000000000000000		
Laboratory Fortified Blank	<0.001 mg/L	0.010 mg/L	0.010 mg/L	99.9
TW-22 8/27/21 Matrix Spike	0.46 mg/L	0.40 mg/L	0.81 mg/L	87.6
TW-22 8/27/21 Matrix Spike Duplicata	0.46 mg/L	0.40 mg/L	0.81 mg/L	86.6

Comments: Control Limits:

Sample

Recoveries
Laboratory Control Sample Recovery (65 - 115%)
Matrix Spike Recovery (80 - 120%)
Relative Range
Replicates (<20%)

Analyzed Concentration

<0.001 mg/L

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G001-002

QC Decision

