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: January 2022**

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.

## 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. |
| O: | 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: 2/9/22

**Report Checked by:** *Ray Woods* Date: 2/9/22

GELMAN Sciences Inc.

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

# Sample Analysis Report

## January, 2022

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) |
|---|---|---|---|---|---|---|---|---|
| **Extraction Wells** | | | | | | | | |
| **C3** | | | | | | | | |
| DOLPH-DOLPH-01-13-22-13:00-1 | 150 | 10 | | | | | | O,D |
| TW-10-01-11-22-12:50-1 | 550 | 10 | | | | | | O,D |
| TW-14-01-05-22-13:35-1 | 130 | 5 | | | | | | O,D |
| TW-14-01-13-22-13:30-1 | 120 | 10 | | | | | | O,D |
| TW-20-01-13-22-13:20-1 | 720 | 20 | | | | | | O,D |
| TW-24-01-13-22-13:10-1 | 2300 | 40 | | | | | | O,D |
| **D2** | | | | | | | | |
| LB-4-01-13-22-11:40-1 | 410 | 10 | | | | | | O,D |
| TW-21-01-13-22-12:50-1 | 240 | 10 | | | | | | O,D |
| **E** | | | | | | | | |
| TW-17-01-05-22-13:30-1 | 74 | 5 | | | | | | O,D |
| TW-17-01-13-22-13:35-1 | 49 | 1.0 | | | | | | O |
| TW-18-01-13-22-12:55-1 | 240 | 10 | | | | | | O,D |
| TW-23-01-13-22-11:40-1 | 400 | 10 | | | | | | O,D |
| TW-29-01-13-22-11:55-1 | 330 | 10 | | | | | | O,D |
| **Marshy** | | | | | | | | |
| PW-1-01-13-22-13:05-1 | 840 | 10 | | | | | | O,D |
| **SW** | | | | | | | | |
| TW-22-01-13-22-13:45-1 | 470 | 40 | | | | | | O,D |

| Sample Name - Date/Time Sampled | 1,4-Dioxane Results (ppb) | R.L. (ppb) | Bromate Results (ppb) | R.L. (ppb) | Bromide Results (ppb) | R.L. (ppb) | Comments | Qualifier(s) |
|---|---|---|---|---|---|---|---|---|
| TW-28-01-13-22-13:50-1 | 620 | 40 | | | | | | O,D |
| **Monitoring Wells** | | | | | | | | |
| **C3** | | | | | | | | |
| MW-34s-01-31-22-09:33-1 | nd | 1.0 | | | | | | O |
| MW-38s-01-31-22-12:08-1 | nd | 1.0 | | | | | | O |
| **D0** | | | | | | | | |
| MW-53d-01-12-22-09:20-1 | 1 | 1.0 | | | | | | O |
| MW-53i-01-12-22-11:56-1 | 54 | 1.0 | | | | | | O |
| MW-53s-01-12-22-10:48-1 | nd | 1.0 | | | | | | O |
| **D2** | | | | | | | | |
| 2819 Dexter Rd-01-13-22-17:02-1 | 160 | 10 | | | | | | O,D |
| MW-107-01-18-22-15:25-1 | 590 | 10 | | | | | | O,D |
| MW-120s-01-13-22-15:42-1 | nd | 1.0 | | | | | | O |
| MW-123s-01-18-22-13:59-1 | nd | 1.0 | | | | | | O |
| MW-129i-01-13-22-12:01-1 | nd | 1.0 | | | | | | O |
| MW-129s-01-13-22-10:54-1 | nd | 1.0 | | | | | | O |
| MW-130i-01-18-22-10:36-1 | 6 | 1.0 | | | | | | O |
| MW-130s-01-18-22-09:12-1 | nd | 1.0 | | | | | | O |
| MW-133i-01-12-22-14:50-1 | 2 | 1.0 | | | | | | O |
| MW-133s-01-12-22-13:32-1 | 2 | 1.0 | | | | | | O |
| MW-34d-01-31-22-10:45-1 | nd | 1.0 | | | | | | O |
| MW-38d-01-31-22-13:15-1 | 49 | 1.0 | | | | | | O |
| **E** | | | | | | | | |
| MW-101-01-20-22-12:26-1 | 89 | 5 | | | | | | O,D |
| MW-103d-01-19-22-10:38-1 | 5 | 1.0 | | | | | | O |
| MW-103s-01-19-22-11:47-1 | 81 | 5 | | | | | | O,D |

| Sample Name - Date/Time Sampled | 1,4-Dioxane Results (ppb) | R.L. (ppb) | Bromate Results (ppb) | R.L. (ppb) | Bromide Results (ppb) | R.L. (ppb) | Comments | Qualifier(s) |
|---|---|---|---|---|---|---|---|---|
| MW-104-01-19-22-13:20-1 | 24 | 1.0 | | | | | | O |
| MW-110-01-19-22-14:40-1 | 120 | 10 | | | | | | O,D |
| MW-112i-01-17-22-12:13-1 | 8 | 1.0 | | | | | | O |
| MW-112s-01-17-22-10:58-1 | 3 | 1.0 | | | | | | O |
| MW-115-01-14-22-15:11-1 | 470 | 10 | | | | | | O,D |
| MW-116-01-14-22-13:42-1 | 650 | 10 | | | | | | O,D |
| MW-119-01-20-22-09:31-1 | 29 | 1.0 | | | | | | O |
| MW-120d-01-13-22-14:33-1 | nd | 1.0 | | | | | | O |
| MW-123d-01-18-22-12:48-1 | nd | 1.0 | | | | | | O |
| MW-129d-01-13-22-13:11-1 | nd | 1.0 | | | | | | O |
| MW-130d-01-18-22-11:22-1 | nd | 1.0 | | | | | | O |
| MW-133d-01-12-22-16:10-1 | 4 | 1.0 | | | | | | O |
| MW-66-01-31-22-14:41-1 | 2 | 1.0 | | | | | | O |
| MW-76i-01-17-22-13:43-1 | 99 | 5 | | | | | | O,D |
| MW-76s-01-17-22-14:51-1 | 280 | 10 | | | | | | O,D |
| MW-79d-01-14-22-09:37-1 | nd | 1.0 | | | | | | O |
| MW-79s-01-14-22-10:46-1 | 260 | 10 | | | | | | O,D |
| MW-84s-01-14-22-12:05-1 | 220 | 10 | | | | | | O,D |
| MW-85-01-14-22-16:45-1 | 530 | 10 | | | | | | O,D |
| MW-88-01-20-22-10:54-1 | 140 | 5 | | | | | | O,D |
| **Surface Water** | | | | | | | | |
| **Not Applicable** | | | | | | | | |
| HC/HR-01-04-22-11:20-1 | | | nd | 2.0 | | | | |
| HC/HR-01-05-22-10:35-1 | | | nd | 2.0 | | | | |
| HC/HR-01-06-22-09:20-1 | | | nd | 2.0 | | | | |
| HC/HR-01-07-22-10:00-1 | | | nd | 2.0 | | | | |
| HC/HR-01-10-22-09:35-1 | | | 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-01-11-22-09:35-1 | | | nd | 2.0 | | | | |
| HC/HR-01-12-22-10:35-1 | | | nd | 2.0 | | | | |
| HC/HR-01-13-22-11:20-1 | | | nd | 2.0 | | | | |
| HC/HR-01-14-22-10:40-1 | | | nd | 2.0 | | | | |
| HC/HR-01-17-22-09:10-1 | | | nd | 2.0 | | | | |
| HC/HR-01-18-22-10:25-1 | | | nd | 2.0 | | | | |
| HC/HR-01-19-22-11:00-1 | | | nd | 2.0 | | | | |
| HC/HR-01-20-22-09:50-1 | | | nd | 2.0 | | | | |
| HC/HR-01-21-22-10:20-1 | | | nd | 2.0 | | | | |
| HC/HR-01-24-22-10:20-1 | | | nd | 2.0 | | | | |
| HC/HR-01-25-22-09:45-1 | | | nd | 2.0 | | | | |
| HC/HR-01-26-22-10:25-1 | | | nd | 2.0 | | | | |
| HC/HR-01-27-22-11:00-1 | | | nd | 2.0 | | | | |
| HC/HR-01-28-22-10:10-1 | | | nd | 2.0 | | | | |
| HC/HR-01-31-22-10:55-1 | | | nd | 2.0 | | | | |
| **Treatment System** | | | | | | | | |
| OUTFALL-01-02-22-2 | | | 7.2 | 5.0 | | | | |
| OUTFALL-01-02-22- | 6 | 1.0 | | | | | | O |
| OUTFALL-01-03-22-2 | | | 7.8 | 5.0 | | | | |
| OUTFALL-01-03-22- | 6 | 1.0 | | | | | | O |
| OUTFALL-01-04-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-04-22-2 | | | 7.6 | 5.0 | | | | |
| OUTFALL-01-05-22-1 | 7 | 1.0 | | | | | | O |
| OUTFALL-01-05-22-2 | | | 6.5 | 5.0 | | | | |
| OUTFALL-01-06-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-06-22-2 | | | 9.6 | 5.0 | | | | |
| OUTFALL-01-09-22-1 | 6 | 1.0 | | | | | | O |

| Sample Name - Date/Time Sampled | 1,4-Dioxane Results (ppb) | R.L. (ppb) | Bromate Results (ppb) | R.L. (ppb) | Bromide Results (ppb) | R.L. (ppb) | Comments | Qualifier(s) |
|---|---|---|---|---|---|---|---|---|
| OUTFALL-01-09-22-2 | | | 4.8 | 5.0 | | | | |
| OUTFALL-01-10-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-10-22-2 | | | 9.5 | 0.5 | | | | |
| OUTFALL-01-11-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-11-22-2 | | | 7.6 | 5.0 | | | | |
| OUTFALL-01-12-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-12-22-2 | | | 8.3 | 5.0 | | | | |
| OUTFALL-01-13-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-13-22-2 | | | 8.3 | 5.0 | | | | |
| OUTFALL-01-16-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-16-22-2 | | | 8.4 | 5.0 | | | | |
| OUTFALL-01-17-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-17-22-2 | | | 8.2 | 5.0 | | | | |
| OUTFALL-01-18-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-18-22-2 | | | 11 | 5.0 | | | | |
| OUTFALL-01-19-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-19-22-2 | | | 11 | 5.0 | | | | |
| OUTFALL-01-20-22-1 | 5 | 1.0 | | | | | | O,D |
| OUTFALL-01-20-22-2 | | | 10 | 5.0 | | | | |
| OUTFALL-01-23-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-23-22-2 | | | 9.0 | 5.0 | | | | |
| OUTFALL-01-24-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-24-22-2 | | | 7.2 | 5.0 | | | | |
| OUTFALL-01-25-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-25-22-2 | | | 7.8 | 5.0 | | | | |
| OUTFALL-01-26-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-26-22-2 | | | 5.5 | 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-01-27-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-27-22-2 | | | 7.6 | 5.0 | | | | |
| OUTFALL-01-30-22-1 | 6 | 1.0 | | | | | | O |
| OUTFALL-01-30-22-2 | | | 7.6 | 5.0 | | | | |
| OUTFALL-01-31-22-1 | 5 | 1.0 | | | | | | O |
| OUTFALL-01-31-22-2 | | | 14 | 5.0 | | | | |
| Red Pond-01-04-22-07:45- | 360 | 1.0 | | | | | | O,D |
| Red Pond-01-04-22-07:45- | 360 | 40 | | | | | | O,D |
| Red Pond-01-05-22-07:15-1 | 380 | 40 | | | | | | O,D |
| Red Pond-01-06-22-07:10-1 | 390 | 40 | | | | | | O,D |
| Red Pond-01-07-22-07:30-1 | 380 | 40 | | | | | | O,D |
| Red Pond-01-10-22-07:05-1 | 380 | 40 | | | | | | O,D |
| Red Pond-01-11-22-07:35-1 | 430 | 40 | | | | | | O,D |
| Red Pond-01-12-22-07:00-1 | 460 | 40 | | | | | | O,D |
| Red Pond-01-13-22-07:10-1 | 400 | 40 | | | | | | O,D |
| Red Pond-01-14-22-07:00-1 | 330 | 40 | | | | | | O,D |
| Red Pond-01-17-22-07:20-1 | 390 | 40 | | | | | | O,D |
| Red Pond-01-18-22-07:20-1 | 400 | 40 | | | | | | O,D |
| Red Pond-01-19-22-07:15-1 | 350 | 40 | | | | | | O,D |
| Red Pond-01-20-22-07:15-1 | 350 | 40 | | | | | | O,D |
| Red Pond-01-21-22-07:25-1 | 360 | 40 | | | | | | O,D |
| Red Pond-01-24-22-07:15-1 | 400 | 40.0 | | | | | | O, D |
| Red Pond-01-25-22-08:47-1 | 380 | 40.0 | | | | | | O, D |
| Red Pond-01-26-22-08:55-1 | 390 | 40.0 | | | | | | O, D |
| Red Pond-01-27-22-07:10-1 | 390 | 40.0 | | | | | | O, D |
| Red Pond-01-28-22-07:10-1 | 380 | 40.0 | | | | | | O, D |
| Red Pond-01-31-22-09:05-1 | 370 | 1.0 | | | | | | O,D |

| Sample Name - Date/Time Sampled | 1,4-Dioxane Results (ppb) | R.L. (ppb) | Bromate Results (ppb) | R.L. (ppb) | Bromide Results (ppb) | R.L. (ppb) | Comments | Qualifier(s) |
|---|---|---|---|---|---|---|---|---|
| Red Pond-01-31-22-09:05-1 | 370 | 40 | | | | | | O,D |

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9904
Wisconsin Laboratory ID: 998321720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0131221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 4 water samples, received by ATS on January 31, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 15

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com), Katie Strohauer (kstrohauer@tveng.com), rwoods@tv-operations.com, Peters, Sue Peters (sue_peters@pall.com), Amanda Isabelle (amanda_isabelle@pall.com)

**Date:** 2/7/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0955.



X:\G001-002.22\Data_Transmittal_Cover_Page SLS.xls

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0131221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 2/7/22**
**SRF / SDG Number(s): 0131221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 4 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/31/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Revised 1/31/22* | | | | |
| Outfall 001 | 1/30/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| EIE-OC-1A | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| EIE-OC-2A | 1/31/22 | 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 | 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





### 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

#### 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



### 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

### 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 1/30/22

/ February 7, 2022

Mark T. DeLong (Quality Assurance Coordinator)

/ February 7, 2022

Philip B. Simon (Laboratory Director)



CHAIN OF CUSTODY RECORD

Page 1

* = Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCOP0013121
SDG #: 0131221
Project Number: G001-002.22
Report Date: 2/7/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Lab Limit | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-131122 | 1/31/2022 | 19:20:47 | 1,4-Dioxane | 123-91-1 | ND | ug/L | 0.50 | 0.051 | 0.50 | |

Comments:
Analysis performed using USEPA method 1624 Rev. B with modifications.
Reporting limits are adjusted for sample dilutions, sample aliquot amount, percent moisture, and final extract volume.
ND = Analyte not detected at or above the reporting limit.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCOP0013121
SDG: 0131221
Project Number: G001-002.22
Report Date: 2/7/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Spike Concentration | Result | Units | Lab Limits | Percent Recovery | QC Limits | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LRB-131122 | 1/31/2022 | 15:13:37 | 1,4-Dioxane | 123-91-1 | 10.00 | 8.6100 | ug/L | 68 - 132 | 86 | 68 - 132 | |

Comments:
Analysis performed using USEPA method 1624 Rev. B with modifications.
Percent recovery and RPD limits are adjusted for sample dilutions, sample aliquot amount, percent moisture, and final extract volume.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS/0131221
SDG: 0131221
Project Number: G001-002.22
Report Date: 2/7/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | GAS | Sample Concentration | Data Added | Measured Concentration | Units | Recovery Limits | Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0131213-MS | 01/31/2022 | 12:34:12 | 1,4-Dioxane | 123-91-1 | 0.311 | 0.200 | 1.12 | mg/L | 80-120 | 80.4 | 80 | 120 | |

Comments:
Calibration Verification (CCV) outside of control limits biased high.
Analyte detected in the associated method blank at a concentration greater than the MDL but less than the RL.
# Indicates analyte spiked at a level outside calibration.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS/0131221
SDG: 0131221
Project Number: G001-002.22
Report Date: 2/7/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | GAS | Sample Concentration | Data Added | Measured Concentration | Units | Recovery Limits | Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0131213-MSD | 01/31/2022 | 13:15:22 | 1,4-Dioxane | 123-91-1 | 0.311 | 0.200 | 1.23 | mg/L | 80-120 | 96.2 | 80 | 120 | |

Comments:
Calibration Verification (CCV) outside of control limits biased high.
Analyte detected in the associated method blank at a concentration greater than the MDL but less than the RL.
# Indicates analyte spiked at a level outside calibration.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS/0131221
SDG: 0131221
Project Number: G001-002.22
Report Date: 2/7/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | GAS | Result | Result Units | Lab Mean | Lab Mean Units | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0131213-MS | 01/31/2022 | 12:34:12 | 1,4-Dioxane | 123-91-1 | 1.12 | ng/L | 1.18 | ng/L | 8.78 | 20 | |
| 0131213-MSD | 01/31/2022 | 13:15:22 | 1,4-Dioxane | 123-91-1 | 1.23 | ng/L | | | | | |

Comments:
Calibration Verification (CCV) outside of control limits biased high.
Analyte detected in the associated method blank at a concentration greater than the MDL but less than the RL.
# Indicates analyte spiked at a level outside calibration.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0200 Fax. 734/995-0731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0201221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 13 water samples, received by ATS on February 1, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 25

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Kelly Strohauer (kstrohauer@tveng.com), rwoods@hv-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

**Date:** 2/7/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.



K:\G001-002.22\Data_Transmittal_Cover_Page SLS.xls

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0201221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 2/7/22**
**SRF / SDG Number(s): 0201221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 13 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 2/1/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 2/1/22* | | | | |
| Outfall 001 | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| Combination Effluent | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| WF-OC-1A | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| WF-OC-2A | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| BB-1 | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 2/1/22 | Urgent | 1,4-Dioxane | Water |
| MW-34s | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| MW-34d | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| MW-38s | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| MW-38d | 1/31/22 | Urgent | 1,4-Dioxane | Water |
| MW-46 | 1/31/22 | 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 | 13 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |



*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 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 1, Level IV EVP, 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 in 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:

- None

#### 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

# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
## LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0201221
SDG: 0201221
Project Number: G001-002.22
Report Date: 2/7/2022

### Matrix Spike Duplicate (MSD)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0201221-2 MSD | 02/01/2022 | 12:31:03 | 1,4-Dioxane | 123-91-1 | 0.388 | 0.800 | 1.17 | mg/L | Wet | 97.5 | 80 | 120 | |

**Comments**
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - indicates elevated reporting limit based upon sample dilution.

---

**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 1/31/22

Mark DeLong / February 7, 2022
Mark T. DeLong (Quality Assurance Coordinator)

/ February 7, 2022
Philip B. Simon (Laboratory Director)

---

# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
## LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0201221
SDG: 0201221
Project Number: G001-002.22
Report Date: 2/7/2022

### Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 2/1/22 | 02/01/2022 | 09:28:05 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00953 | mg/L | Wet | 95.3 | 85 | 115 | |

**Comments**
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - indicates elevated reporting limit based upon sample dilution.

---

## CHAIN OF CUSTODY RECORD

Page 1

|  |  |
|---|---|
| PROJECT ID / NAME | Fall / G001-002 |
| Client Purchase Authorization (Purchase Order) | PO# [illegible] |
| SAMPLE CUSTODIAN (print name) | Gage Trombe (Gage_Trombe@[illegible]) |
| RELINQUISHED BY (print & signature) — DATE / TIME | 2/1/22 8:30 |
| RECEIVED BY (print & signature) | Jim Bradley 9:27 2/1/22 |
| COMMENTS (Preservation, etc.) | Outfall/Eff = Unpreserved   All others = HCl preserved |

| LINE NO | LABORATORY IDENTIFICATION (ATS Lab Only) | DATE | TIME | COMP. | GRAB | Sample Identification | NO. OF CONTAINERS | PRIORITY NUMBER* | EPA 1624 1,4-Dioxane | MATRIX |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 020122-1 | 1/31/2022 | | X | | Outfall | 1 | 1 | X | Water |
| 2 | 2 | 2/1/2022 | 7:08 | | X | Red Pond | 1 | 1 | X | Water |
| 3 | 3 | 2/1/2022 | 7:10 | | X | Combination Effluent | 1 | 1 | X | Water |
| 4 | 4 | 2/1/2022 | 7:15 | | X | Eff-OC-1A | 1 | 1 | X | Water |
| 5 | 5 | 2/1/2022 | 7:15 | | X | Eff-OC-2A | 1 | 1 | X | Water |
| 6 | 6 | 2/1/2022 | 7:20 | | X | EF-1 | 1 | 1 | X | Water |
| 7 | 7 | 2/1/2022 | 7:25 | | X | Outfall Grab | 1 | 1 | X | Water |
| 8 | 8 | 2/1/2022 | 7:30 | | X | Outfall Test | 1 | 1 | X | Water |
| 9 | 9 | 1/31/2022 | 9:33 | | X | MW-34s | 1 | 1 | X | Water |
| 10 | 10 | 1/31/2022 | 10:48 | | X | MW-34d | 1 | 1 | X | Water |
| 11 | 11 | 1/31/2022 | 12:08 | | X | MW-35s | 1 | 1 | X | Water |
| 12 | 12 | 1/31/2022 | 13:13 | | X | MW-35d | 1 | 1 | X | Water |
| 13 | 13 | 1/31/2022 | 14:41 | | X | MW-5S | 1 | 1 | X | Water |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | | | | | | | | | | |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

---

# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
## LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0201221
SDG: 0201221
Project Number: G001-002.22
Report Date: 2/7/2022

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0201221-2 MS | 02/01/2022 | 11:47:28 | 1,4-Dioxane | 123-91-1 | 1.11 | | mg/L | Wet | | | |
| 0201221-2 MSD | 02/01/2022 | 12:31:03 | 1,4-Dioxane | 123-91-1 | 1.17 | 1.14 | mg/L | Wet | 4.73 | 20 | |

**Comments**
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - indicates elevated reporting limit based upon sample dilution.

---

# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
## LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0201221
SDG: 0201221
Project Number: G001-002.22
Report Date: 2/7/2022

### Laboratory Reagent Blank (LRB) / Method Blank (MB)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 2/1/22 | 02/01/2022 | 08:44:11 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | | |

**Comments**
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - indicates elevated reporting limit based upon sample dilution.

---

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

|  |  |  |  |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0131221 | Preparation Date | 01/31/2022 |
| Client Sample ID | Eff-OC-1A | Analysis Date | 01/31/2022 14:01:60 |
| Laboratory Sample ID | 0131221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 9:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0131221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

**Comments**
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

---

# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
## LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0201221
SDG: 0201221
Project Number: G001-002.22
Report Date: 2/7/2022

### Matrix Spike (MS)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0201221-2 MS | 02/01/2022 | 11:47:28 | 1,4-Dioxane | 123-91-1 | 0.388 | 0.800 | 1.11 | mg/L | Wet | 90.8 | 80 | 120 | |

**Comments**
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - indicates elevated reporting limit based upon sample dilution.

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0131221 | Preparation Date | 01/31/2022 |
| Client Sample ID | EB-DC-3A | Analysis Date | 01/31/2022 14:45:35 |
| Laboratory Sample ID | 0131221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 9:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0131221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | Combination Effluent | Analysis Date | 02/01/2022 13:14:02 |
| Laboratory Sample ID | 0201221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
D – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | EB-DC-1A | Analysis Date | 02/01/2022 13:58:44 |
| Laboratory Sample ID | 0201221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | EB-DC-2A | Analysis Date | 02/01/2022 14:42:33 |
| Laboratory Sample ID | 0201221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | EB-1 | Analysis Date | 02/01/2022 15:26:10 |
| Laboratory Sample ID | 0201221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 02/01/2022 16:10:04 |
| Laboratory Sample ID | 0201221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 02/01/2022 16:53:58 |
| Laboratory Sample ID | 0201221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0131221 | Preparation Date | 01/31/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/31/2022 11:06:27 |
| Laboratory Sample ID | 0131221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/30/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0131221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0131221 | Preparation Date | 01/31/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/31/2022 11:58:39 |
| Laboratory Sample ID | 0131221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 9:05 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0131221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.37 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | Outfall | Analysis Date | 02/01/2022 10:19:22 |
| Laboratory Sample ID | 0201221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | Red Pond | Analysis Date | 02/01/2022 11:03:13 |
| Laboratory Sample ID | 0201221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 02/01/2022 7:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.39 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | MW-34s | Analysis Date | 02/01/2022 17:37:51 |
| Laboratory Sample ID | 0201221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 9:53 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
U - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | MW-34d | Analysis Date | 02/01/2022 18:21:40 |
| Laboratory Sample ID | 0201221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 10:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
U - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | MW-38d | Analysis Date | 02/01/2022 19:05:27 |
| Laboratory Sample ID | 0201221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 12:58 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
U - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | MW-36d | Analysis Date | 02/02/2022 08:17:56 |
| Laboratory Sample ID | 0201221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 13:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.043 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0201221 | Preparation Date | 02/01/2022 |
| Client Sample ID | MW-48 | Analysis Date | 02/02/2022 09:01:44 |
| Laboratory Sample ID | 0201221-13 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/31/2022 14:41 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0201221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.007 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

ATS
395 South Wagner Road
Ann Arbor, Michigan 48103
Tel 734/995-0995 Fax 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998021790

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0124221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 8 water samples, received by ATS on January 24, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 10

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brosie, Jim (jim_brosie@pall.com); Kelle Strohaker (katmhauer@lhwing.com), rwoods@fv-operations.com, Peters, Sue Peters (sue_peters@pall.com); Amanda Isabella (amanda_isabella@pall.com)

**Date:** 2/4/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





ATS
ANALYTICAL SERVICES

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 2/4/22**
**SRF / SDG Number(s): 0124221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 8 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/24/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/24/22* | | | | |
| Outfall 001 | 1/23/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| TIP-1 | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/24/22 | 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 | 8 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 conditions 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



*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 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 (IS, 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 ug/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:

- None



#### 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

#### 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 1/23/22

Mark T. DeLong / February 4, 2022

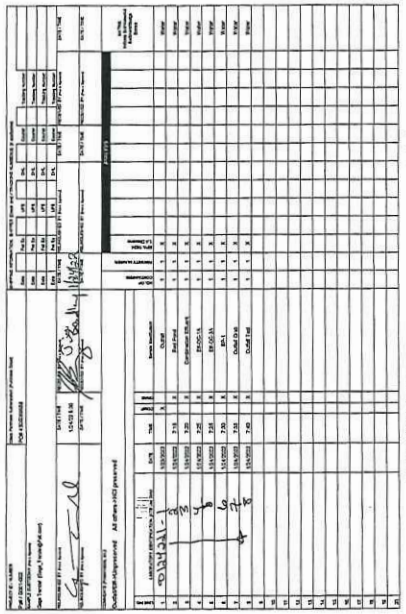
Mark T. DeLong (Quality Assurance Coordinator)

Philip D. Simon / February 4, 2022

Philip D. Simon (Laboratory Director)



CHAIN OF CUSTODY RECORD



Page 1 of 1

* = Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

ATS
ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0124221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ATS

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/2022 |
| Client Sample ID | Outlet | Analysis Date | 01/24/2022 11:25:31 |
| Laboratory Sample ID | 0124221-1 | Instrument | 210DV |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/23/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCCHG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

ATS

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/24/2022 12:08:26 |
| Laboratory Sample ID | 0124221-2 | Instrument | 210DV |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCCHG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.40 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/0022 |
| Client Sample ID | Combination Effluent | Analysis Date | 01/24/0022 14:20:57 |
| Laboratory Sample ID | 0124221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/0022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/0022 |
| Client Sample ID | LR-QC-1A | Analysis Date | 01/24/0022 13:04:45 |
| Laboratory Sample ID | 0124221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/0022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/0022 |
| Client Sample ID | LR-QC-2A | Analysis Date | 01/24/0022 10:48:32 |
| Laboratory Sample ID | 0124221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/0022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/0022 |
| Client Sample ID | SB-1 | Analysis Date | 01/24/0022 16:32:18 |
| Laboratory Sample ID | 0124221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/0022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/0022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/24/0022 17:16:06 |
| Laboratory Sample ID | 0124221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/0022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0124221 | Preparation Date | 01/24/0022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/24/0022 17:58:58 |
| Laboratory Sample ID | 0124221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/0022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0124221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## ANN ARBOR TECHNICAL SERVICES, INC.
### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0124221
SDG: 0124221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LR-01124/22 | 01/24/2022 | 15:38:22 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | 0.001 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.
### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0124221
SDG: 0124221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Spike Concentration | Result | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LR-01124/22 | 01/24/2022 | 15:38:22 | 1,4-Dioxane | 123-91-1 | 12.500 | 12.500 | ug/L | Wet | 100 | 61 | 116 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

ATS
Ann Arbor Technical Services, Inc.
Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-2547 Fax 734/995-2031

# Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number(s):** G001-002
**Invoice, SRF, 0125221**
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 2 soil/air samples, received by ATS on January 26, 2022 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 Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data quality, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless otherwise noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Glen Trembl Email:
FAX Number: glen_trembl@pall.com

No. of Pages (including cover pg.): 16

From: Sarah Stabenfeldt Email: Sarah_Stabenfeldt@AnnArborTechnicalServices.com
Senior Chemist / Lab Manager FAX Number: 734-995-2031

Additional Messages: Copy report to: Robinson, Keith (keith_robinson@pall.com), Bonds, Jim (jim_bonds@pall.com), Addie Dishauer (addiedishauer@hmcg.com), mcnabb@h-mcgeorges.com, Peters, Sue (Peters.Sue_Ann@epa.gov), Amanda Isabelle (mmeidy_isabelle@pall.com)

Date: 2/2/22 Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-2696.

This document is intended only for the use of the individual or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

X:\G001-002\220126ats_Transmittal_Cover_Page.123.xls

ATS
Ann Arbor Technical Services, Inc.
Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-2547 Fax 734/995-2031

# CASE NARRATIVE
## LABORATORY OPERATIONS

**ATS Project Number(s):** G001-002
**Report #:** 2422
**SRF #:** 0125221
**Client PO Number:** 4505089688

## Case Narrative Summary

This case narrative applies to the following 5 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/25/22, and associated matrix-specific QA/QC.

| Samples: Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| Amended_020322 | | | | |
| Outfall 001 | 1/24/22 | Urgent | 1,4-Dioxane | Water |
| Rad Plant | 1/25/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/25/22 | Urgent | 1,4-Dioxane | Water |
| EF-DC-1A | 1/25/22 | Urgent | 1,4-Dioxane | Water |
| EF-DC-2A | 1/25/22 | Urgent | 1,4-Dioxane | Water |

## 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 conditions and anomalies, if any, are either presented in the "Sample Receipt" section, or noted on the data report. Holding times for individual data reports are calculated from sample collection to analysis. All samples were properly received within 48 hours with the following exceptions:

- None

Upon receipt samples were submitted for the following analyses:

Analysis
- 1,4-Dioxane (SW8270A, SIM) - Urgent TAT

Number of Samples
- 5 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

## Data Review and Approval

All data contained in this report have been controlled in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedure (SOP) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed by technical staff prior to release. Data are released only when all QA/QC criteria have been met, or 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, LCS), LCSD, 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 (SVP, EPA R2 SOP) are available upon request. There were no bioassay data summary sheets generated for this project.

## Sample Analysis

1,4-Dioxane (SW8260): Samples were analyzed by purge and trap GC/MS in accordance with USEPA Method 8260 (Volatile Organic Compounds by Gas Chromatography - Mass Spectrometry). An initial calibration with all target analytes was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as ug/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:

- None

### 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 Surrogates

A surrogate spike (SRG) was added to each sample, standard, and QA/QC sample analyzed. The surrogate recoveries met the acceptance criteria with the following exceptions:

- None

### Sample Dilutions

Samples containing unreasonably high concentrations above the linear calibration range were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Rad Plant 1/24/22

Mark T. DeLong (Quality Assurance Coordinator) /Attested 2-3022

Philip B. Simon (Laboratory Director) /Attested 2-3022

G001-002\220126QA_010322.doc

ATS
Ann Arbor Technical Services, Inc.
Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-2547 Fax 734/995-2031

# ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0124221
SDG: 0124221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0124221-2 MS | 01/24/2022 | 12:53:18 | 1,4-Dioxane | 123-91-1 | 0.308 | 0.800 | 1.25 | mg/L | final | 117 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Report specific reporting limit (RSL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ATS
Ann Arbor Technical Services, Inc.
Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-2547 Fax 734/995-2031

# ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0124221
SDG: 0124221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0124221-3 MSD | 01/24/2022 | 13:37:07 | 1,4-Dioxane | 123-91-1 | 0.308 | 0.800 | 1.25 | mg/L | final | 109 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Report specific reporting limit (RSL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ATS
Ann Arbor Technical Services, Inc.
Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-2547 Fax 734/995-2031

# ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0124221
SDG: 0124221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mark | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0124221-2 MS | 01/24/2022 | 12:53:18 | 1,4-Dioxane | 123-91-1 | 1.25 | | mg/L | final | | | |
| 0124221-3 MSD | 01/24/2022 | 13:37:07 | 1,4-Dioxane | 123-91-1 | 1.20 | 1.23 | mg/L | final | 4.27 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Report specific reporting limit (RSL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

ATS
Ann Arbor Technical Services, Inc.
Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-2547 Fax 734/995-2031

# CHAIN OF CUSTODY RECORD

Page 1

| Project # / Name | Date Purchase Authorization (Purchase Order) | Shipping Information: Shipper (Check one) / Tracking Number(s) (if applicable) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| G001-002 | PO# 4505089688 | Date | Fed Ex | UPS | DHL | Courier | Tracking Number | |
| Sample Submitter (Name & Signature) | | Date | Fed Ex | UPS | DHL | Courier | Tracking Number | |
| Date Transit (Days_Transit@Pall.com) | | Date | Fed Ex | UPS | DHL | Courier | Tracking Number | |
| Relinquished By: (Print Name) | Date / Time | Received By: (Print Name) | Date / Time | Relinquished By: (Print Name) | Date / Time | Received By: (Print Name) | Date / Time | |
| | 1/25/22 10:00 | | | | | | | |

Comments: (Preservation, etc.)
Outfall001-Unpreserved All others-HCl preserved

| Matrix | Location Code (SRC/FAC/SYS/LOC/EQP) | Date | Time | Grab | Comp | Sample Identification | Preservation (HCl, Unpreserved) | Analysis: 1,4-Dioxane (SW8270A, SIM) | Analysis: Sample Disposal (Return to Client, Dispose) |
|---|---|---|---|---|---|---|---|---|---|
| A | 0125221-1 | 1/24/2022 | | X | | Outfall | A | X | Water |
| A | | 1/25/2022 | 8:47 | X | | Rad Plant | A | X | Water |
| A | | 1/25/2022 | 7:30 | X | | Outfall Grab | A | X | Water |
| A | | 1/25/2022 | 8:45 | X | | EF-DC-1A | A | X | Water |
| A | | 1/25/2022 | 8:45 | X | | EF-DC-2A | A | X | Water |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |
| A | | | | | | | | | |

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0125221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0125221 | Preparation Date | 01/25/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/25/2022 11:11:10 |
| Laboratory Sample ID | 0125221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/24/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0125221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0125221 | Preparation Date | 01/25/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/25/2022 11:54:59 |
| Laboratory Sample ID | 0125221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 8:47 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0125221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.36 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0125221 | Preparation Date | 01/25/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/25/2022 14:06:27 |
| Laboratory Sample ID | 0125221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0125221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0125221 | Preparation Date | 01/25/2022 |
| Client Sample ID | ER-OC-1A | Analysis Date | 01/25/2022 14:50:14 |
| Laboratory Sample ID | 0125221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 8:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0125221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0125221 | Preparation Date | 01/25/2022 |
| Client Sample ID | ER-OC-2A | Analysis Date | 01/25/2022 16:33:58 |
| Laboratory Sample ID | 0125221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 9:43 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0125221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

---

## ANN ARBOR TECHNICAL SERVICES, INC.
### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0125221
SDG: 0125221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-125319 | 01/25/2022 | 12:27:16 | 1,4-Dioxane | 123-91-1 | 0.001 | mg/L | Wet | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

---

## ANN ARBOR TECHNICAL SERVICES, INC.
### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0125221
SDG: 0125221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-125319 | 01/25/2022 | 09:36:29 | 1,4-Dioxane | 123-91-1 | | 0.020 | 0.020 | mg/L | Wet | 98.7 | 61 | 113 | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0125221
BDG: 0125221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0125221-2 MS | 01/28/2022 | 12:38:52 | 1,4-Dioxane | 123-91-1 | 0.375 | 0.800 | 1.18 | mg/L | Wet | 101 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates analyte reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0125221
BDG: 0125221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0125221-3 MSD | 01/28/2022 | 13:22:39 | 1,4-Dioxane | 123-91-1 | 0.375 | 0.800 | 1.18 | mg/L | Wet | 99.4 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates analyte reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0125221
BDG: 0125221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0125221-2 MS | 01/28/2022 | 12:38:52 | 1,4-Dioxane | 123-91-1 | 1.18 | | mg/L | Wet | | | |
| 0125221-3 MSD | 01/28/2022 | 13:22:39 | 1,4-Dioxane | 123-91-1 | 1.18 | 1.17 | mg/L | Wet | 1.53 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates analyte reporting limit based upon sample dilution.

## Data Transmittal Cover Page

ATS Ann Arbor Technical Services, Inc.
Environmental Laboratory & Consulting Services

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Project Number(s):** Inorg_SRF_0125221
**Client PO Number:** 4555089588

**Project Description:** This data report contains the results of 5 surface samples, received by ATS on January 28, 2022 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 standard procedures described in a written Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, quality control data, and calculations have been reviewed for completeness and accuracy. Any deviations from specified criteria in the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Craig Trendel — Email: _____
FAX Number: _____ — Email: craig.trendel@pall.com

No. of Pages (including cover pg.): 10

From: Sarah Bohlefeld — Email: Sarah.Bohlefeld@AnnArborTechnicalServices.com
Senior Project Lab Manager — FAX Number: 734-665-2214

Additional Message: Copy report to: Peterson, Keith (keith.peterson@pall.com); Brook, Jim (jim.brook@pall.com); Kolin Steinhauer (kolinsteinhauer@hrvoy.com); hwoodin@hopecarbons.com; Peters, Sue Peters (sue.peters@pall.com); Amanda Isabella (amanda_isabella@pall.com)

Date: 2/4/22 — Signed: _____

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-665-0055.

This message is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient or the agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

K:\G001-002\1.2\Data\Data_Transmittal_Cover_Page_SDG.doc

## CHAIN OF CUSTODY RECORD

Page 1

| Item # | Laboratory Identification (ATS Use Only) | Date | Time | Matrix | Grab | Composite | Sample Identification | Number of Containers | Analysis Required: 1,4-Dioxane by EPA 1624 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0126221- 1 | 1/25/2022 | | X | | | Outlet | 1 | X | Water |
| 2 | 2 | 1/25/2022 | 8:55 | X | | | Rat Pond | 1 | X | Water |
| 3 | 3 | 1/25/2022 | 9:05 | X | | | EX OG-1A | 1 | X | Water |
| 4 | 4 | 1/25/2022 | 9:10 | X | | | EX OG-1A | 1 | X | Water |
| 5 | 5 | 1/25/2022 | 7:15 | X | | | Outlet Drain | 1 | X | Water |

Outlet/ER=Unpreserved — All others=HCl preserved

Relinquished By (Print & Sign): Mark T. DeLong — Date/Time: 1/26/22 10:00
Received By (Print & Sign): [illegible] — Date/Time: 1/26/22
Relinquished By (Print & Sign): [illegible] — Date/Time: 1/26/22
Received By (Print & Sign): [illegible] — Date/Time: 1/26/22

Shipped Via: Courier
Airbill #: [illegible]

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

## LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 2/4/22
SRF / SDG Number(s): 0125221
Client PO Number: 4555089588

### Case Narrative Summary

This case narrative applies to the following 5 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/26/22, and assessed matrix-specific QA/QC:

| Sample ID | Client Sample Identification | Sample Date | Requested Time Arrived Time | Analysis | Matrix |
|---|---|---|---|---|---|
| | Received: 1/26/22 | | | | |
| 1 | Outlet (Inlet) | 1/25/22 | Unsent | 1,4-Dioxane | Water |
| 2 | Rat Pond | 1/25/22 | Unsent | 1,4-Dioxane | Water |
| 3 | EX OG-1A | 1/25/22 | Unsent | 1,4-Dioxane | Water |
| 4 | EX OG-1A | 1/25/22 | Unsent | 1,4-Dioxane | Water |
| 5 | Outlet Drain | 1/25/22 | Unsent | 1,4-Dioxane | Water |

### 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 standard procedures described in a written standard operating procedure specific to the ATS Laboratories, as required by USEPA. All data sets have been reviewed for completeness and accuracy. Any deviations from specified criteria in the data report, all applicable sample preservation and holding time requirements have been met. Electronic data deliverables have been reviewed to ensure correspondence with the above referenced SOPs and USEPA. All data sets have been reviewed and approved by the undersigned, who confirm 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), LabBs, fortified blanks (BS, LFB, LCS), matrix spikes (MS, SPK), and duplicates whether spiked or native (MSD, SPK DUP, DUP, LD).

### Data Deliverables

This data package constitutes a Level II package; other data report packages (Level I, Level IV DVP, EPA 3rd SDD) are available upon request. There were no laboratory data summary blocks generated for this project.

### Sample Analysis

1,4-Dioxane Analysis (QCOR): Samples were analyzed by purge and trap GC/MS by isotope dilution using USEPA method 1624 Pollutant 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 in project specific reporting limits. Samples were reported as mg/L.

*Anomalies Noted:*
- None

### Annotated 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 were 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

### 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 Duplicates

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 components at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:
- Rat Pond 1/25/22

Mark T. DeLong (Quality Assurances Coordinator) — 2/Attorney/4, 2022

Philip B. Simon (Laboratory Director) — 2/Attorney/4, 2022

G001-002\LAB\QA_01262022.doc

ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS

## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0126221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/26/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/26/2022 11:44:12 |
| Laboratory Sample ID | 0126221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/26/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/26/2022 12:28:05 |
| Laboratory Sample ID | 0126221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 4:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.29 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/26/2022 |
| Client Sample ID | EK-OC-1A | Analysis Date | 01/26/2022 14:39:37 |
| Laboratory Sample ID | 0126221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 9:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/26/2022 |
| Client Sample ID | EK-OC-2A | Analysis Date | 01/26/2022 15:23:26 |
| Laboratory Sample ID | 0126221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 9:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



---

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/26/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/26/2022 16:07:09 |
| Laboratory Sample ID | 0126221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/25/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



---

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0126221
SDG: 0126221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 012622 | 01/26/2022 | 09:24:26 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.031 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

---

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0126221
SDG: 0126221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Spike Concentration | Spike Added | Recovered Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 012622 | 01/26/2022 | 12:16:08 | 1,4-Dioxane | 123-91-1 | 0.4108 | 0.4000 | 0.3639 | mg/L | Wet | 91.0 | 85 | 115 | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

| | |
|---|---|
| Method: | USEPA 1624 |
| QA/QC Batch Number: | QCDRQ0120221 |
| SDG | 6120221 |
| Project Number: | G001-002.22 |
| Report Date: | 2/4/2022 |

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6120231-2 MS | 01/28/2022 | 13:11:56 | 1,4-Dioxane | 123-91-1 | 0.000 | 0.800 | 1.11 | mg/L | Wet | 80.5 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Report specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates standard reporting limit based upon sample dilution.



## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

| | |
|---|---|
| Method: | USEPA 1624 |
| QA/QC Batch Number: | QCDRQ0120221 |
| SDG | 6120221 |
| Project Number: | G001-002.22 |
| Report Date: | 2/4/2022 |

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6120231-2 MSD | 01/28/2022 | 13:55:49 | 1,4-Dioxane | 123-91-1 | 0.000 | 0.800 | 1.22 | mg/L | Wet | 104 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Report specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates standard reporting limit based upon sample dilution.



## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

| | |
|---|---|
| Method: | USEPA 1624 |
| QA/QC Batch Number: | QCDRQ0120221 |
| SDG | 6120221 |
| Project Number: | G001-002.22 |
| Report Date: | 2/4/2022 |

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6120231-2 MS | 01/28/2022 | 13:11:56 | 1,4-Dioxane | 123-91-1 | 1.11 | | mg/L | Wet | | | |
| 6120231-2 MSD | 01/28/2022 | 13:55:49 | 1,4-Dioxane | 123-91-1 | 1.22 | 1.17 | mg/L | Wet | 9.43 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Report specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates standard reporting limit based upon sample dilution.




3984 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/665-8855 Fax: 734/665-3721
Wastewater Laboratory ID: 9964
Wastewater Laboratory for Webservices


## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_6127221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 9 water samples, received by ATS on January 27, 2022 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 Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, SOP's, and QA/QC determinations are available for inspection and audit at the laboratory upon request. Unless otherwise noted, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Ms. Cissy Thendal — **Email:** _____
**FAX Number:** _____ — **cc:** jimmb@pall.com

**No. of Pages (including cover page):** 20

**From:** Sarah Bubalekiel — **Email:** Sarah.bubalekiel@AnnArborTechnicalServices.com
(sarah Chemist / Lab Manager) — **FAX Number:** 734-665-3721

**Additional Messages:** Cc'ing report to: Peterson, Keith (keith_peterson@pall.com); Brodie, Jim (jim_brodie@pall.com); Kate Stahlmuer (katestahlmuer@cwmj.com); kwood@fth-operations.com; Peters, Lisa (lisa_peters@pall.com); Amanda Isabella (amanda_isabella@pall.com)

Date: 2/4/22 — Signed: _____

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-665-8855.

This report is intended solely for the use of the individual or entity to which it is addressed. It may contain information that is privileged, confidential and exempt from disclosure under applicable law. If you are not the intended recipient of the report, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

3:\QA\01-002.22\Data_Transmittal_Cover_Page 123.xls




ATS Laboratories


## LABORATORY OPERATIONS CASE NARRATIVE

**ATS Project Number:** G001-002
**Report Date:** 2/4/22
**SRF / SDG Number(s):** 6127221
**Client PO Number:** 4505089688

### Case Narrative Summary

This case narrative applies to the following 9 samples that were received by Ann Arbor Technical Services, Inc. (ATS) on 1/27/22, and associated matrix-specific QA/QC:

Samples:

| Client Sample Identification | Sample Date | Requested Turn-Around Time | Analysis | Matrix |
|---|---|---|---|---|
| Assured (07/22) | | | | |
| Outfall 3W1 | 1/24/22 | 12urgent | 1,4-Dioxane | Water |
| Red Pond | 1/27/22 | 12urgent | 1,4-Dioxane | Water |
| Condensation Effluent | 1/27/22 | 12urgent | 1,4-Dioxane | Water |
| EP-DO-1A | 1/27/22 | 12urgent | 1,4-Dioxane | Water |
| EP-DO-2A | 1/27/22 | 12urgent | 1,4-Dioxane | Water |
| BP-1 | 1/27/22 | 12urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/27/22 | 12urgent | 1,4-Dioxane | Water |
| Outfall Triad | 1/27/22 | 12urgent | 1,4-Dioxane | Water |

### Sample Receipt, Chain of Custody Records, and Holding Times

Upon receipt samples were scheduled for the following analyses:

| Analysis | Number of Samples |
|---|---|
| 1,4-Dioxane (USEPA 1624) - Organic TAT | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |

### Sample Integrity and Preservation

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody documentation. Sample integrity was verified upon receipt. Sample preservation was verified as noted on the cooler receipt section of this report or in the laboratory notebook or individual data records. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

GM:I:\ATS\2022\01-002\Data_Transmittal_Cover_Page 123.xls


Consultants in Chemistry & Environmental Science
3984 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/665-8855 Fax 734/665-3721


### Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced 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 are reviewed to the Laboratory's Quality Assurance / Quality Control Manual.

A target QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), certified blanks (CB), OPR, LCSs, matrix spikes (MS), MSDs, and duplicates whether spiked or native (MSD, DPR, DUP, LRD).

### Data Deliverables

The data package constitutes a Level II package (other data report packages (Level I, Level IV, EPA, RAS, ERD) are available upon request. There were no limitations on the laboratory duties 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 was performed for 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

*Assumptions Made:*

- None

### Analytical QA/QC Summary

### Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (ICV) 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 were demonstrated through the analysis of reagent blanks at a minimum of every 12 hours. All reagent 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

### 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

### 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 1/24/22

Mark T. DiGiorgi (Quality Assurance Coordinator) — 2/4/2022

Philip H. Simon (Laboratory Director) — 2/4/2022

GM:I:\ATS\2022\01-002\Data_Transmittal_Cover_Page 123.xls




3984 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/665-8855 Fax: 734/665-3721
Wastewater Laboratory ID: 9964


## CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT ID / WORK ORDER: Pall / G001-002
SAMPLE SUBMISSION (Permit Number): FOR 4505089688
Page Transfer (Copy_Transfer@Pall.com)

Send Purchase Authorization (Purchase Order):

Outfall/EB=Unpreserved All others=HCl preserved

| Item # | Date | Time | Grab | Comp | Sample Identification | Total # of Containers | Preservation Type | Volume Collected (mL) | Matrix |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/27/22 | | X | | Outfall | 1 | U | 1 | Water |
| 2 | | 7:10 | X | | Red Pond | 1 | U | 1 | Water |
| 3 | | 7:15 | X | | Condensation Effluent | 1 | U | 1 | Water |
| 4 | | 7:20 | X | | EP-DO-1A | 1 | U | 1 | Water |
| 5 | | 7:25 | X | | EP-DO-2A | 1 | U | 1 | Water |
| 6 | | 7:30 | X | | BP-1 | 1 | U | 1 | Water |
| 7 | | 7:35 | X | | Outfall Grab | 1 | U | 1 | Water |
| 8 | | 7:35 | X | | Outfall Triad | 1 | U | 1 | Water |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

**Jim Bradley**

**From:** Trendel, Gage <gage_trendel@pall.com>
**Sent:** Thursday, January 27, 2022 10:46 AM
**To:** Sarah Stubblefield; Mark DeLong
**Cc:** David Stubblefield; Jim Bradley
**Subject:** RE: Pall eCOC 1/27/2022

Sorry! No. The outfall is from the 26th and the rest from the 27th.

**Gage Trendel**
**Chemist**
PALL OPERATIONS AND RESOURCE MANAGEMENT, INC
642 S. Wagner Road | Ann Arbor | MI | 48103
O: 616.977.1000 | D: 419.787.5144 | F: 616.977.1005



From: Trendel, Gage
Sent: Thursday, January 27, 2022 9:35 AM
To: Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>; Mark DeLong <Mark.DeLong@annarbortechnicalservices.com>
Cc: David Stubblefield <David.Stubblefield@annarbortechnicalservices.com>; Jim Bradley <jim.bradley@annarbortechnicalservices.com>
Subject: Pall eCOC 1/27/2022

**Gage Trendel**
**Chemist**
PALL OPERATIONS AND RESOURCE MANAGEMENT, INC
642 S. Wagner Road | Ann Arbor | MI | 48103
O: 616.977.1000 | D: 419.787.5144 | F: 616.977.1005





ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0127221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0127221 | Preparation Date | 01/27/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/27/2022 11:08:21 |
| Laboratory Sample ID | 0127221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/26/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0127221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.00100 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0127221 | Preparation Date | 01/27/2022 |
| Client Sample ID | Rad Pond | Analysis Date | 01/27/2022 11:52:15 |
| Laboratory Sample ID | 0127221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/27/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0127221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.39 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0127221 | Preparation Date | 01/27/2022 |
| Client Sample ID | Combination Effluent | Analysis Date | 01/27/2022 14:03:44 |
| Laboratory Sample ID | 0127221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/27/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0127221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0127221 | Preparation Date | 01/27/2022 |
| Client Sample ID | ER-OC-1A | Analysis Date | 01/27/2022 14:47:33 |
| Laboratory Sample ID | 0127221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/27/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0127221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0127221 | Preparation Date | 01/27/2022 |
| Client Sample ID | ER-OC-2A | Analysis Date | 01/27/2022 19:31:23 |
| Laboratory Sample ID | 0127221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/27/2022 7:29 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0127221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0127221 | Preparation Date | 01/27/2022 |
| Client Sample ID | EP-1 | Analysis Date | 01/27/2022 16:15:14 |
| Laboratory Sample ID | 0127221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/27/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0127221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0127221
EDG: 0127221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0127221-2 MS | 01/31/2022 | 12:36:08 | 1,4-Dioxane | 123-91-1 | 0.588 | 0.500 | 1.20 | mg/L | Wet | 122 | 82 | 129 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2547
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | 0.050 | |

ATS Project Number: G001-002.22
ATS SDG Number: 0127221
Client Sample ID: Outlet Grab
Laboratory Sample ID: 0127221-1
Matrix: Water
Sample Date: 01/27/2022 730
Analytical Method (USEPA): USEPA 1624
Preparation Method (USEPA): USEPA 1624
GC Batch Number: QCOR/G0127221

Percent Moisture
Preparation Date: 01/27/2022 10:04:55
Analysis Date: 01/31/2022 12:42:45
Dilution Factor: 1
Initial Volume (mL): 0.500
Final Volume (mL): 0.500
Solid Weight (g):
Units: mg/L

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2547
Fax: 734-995-3731

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0127221
EDG: 0127221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0127221-3 MSD | 01/31/2022 | 13:13:58 | 1,4-Dioxane | 123-91-1 | 0.588 | 0.500 | 1.20 | mg/L | Wet | 122 | 82 | 129 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | 0.050 | |

ATS Project Number: G001-002.22
ATS SDG Number: 0127221
Client Sample ID: Outlet Trail
Laboratory Sample ID: 0127221-2
Matrix: Water
Sample Date: 01/27/2022 730
Analytical Method (USEPA): USEPA 1624
Preparation Method (USEPA): USEPA 1624
GC Batch Number: QCOR/G0127221

Percent Moisture
Preparation Date: 01/27/2022 10:42:45
Analysis Date: 01/31/2022 13:13:58
Dilution Factor: 1
Initial Volume (mL): 0.500
Final Volume (mL): 0.500
Solid Weight (g):
Units: mg/L

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2547
Fax: 734-995-3731

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0127221
EDG: 0127221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0127221-2 MS | 01/31/2022 | 12:36:08 | 1,4-Dioxane | 123-91-1 | 1.20 | | mg/L | Wet | | | |
| 0127221-3 MSD | 01/31/2022 | 13:13:58 | 1,4-Dioxane | 123-91-1 | 1.20 | 1.20 | mg/L | Wet | 0.168 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0127221
EDG: 0127221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1127.22 | 01/27/2022 | 09:33:25 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0127221
EDG: 0127221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1127.22 | 01/27/2022 | 08:13:34 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00969 | mg/L | Wet | 96.9 | 82 | 118 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

200 South Wagner Road
Ann Arbor, Michigan 48103-9000
Phone: 734-995-2547
Fax: 734-995-3731
Washington Laboratory ID: W6A31799

## Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number(s): G001-002
ATS Report Number(s): Item12_SRR_0128221
Client PO Number: 4503606808

Project Description: This data report contains the results of 8 water samples, received by ATS on January 20, 2022 to be analyzed by 1,4-Dioxane.

We certify that the sample analyses for this report have been conducted in accordance with guidelines presented in the referenced standard test method, and are consistent with detailed procedures described in a written Quality Assurance Plan. Exceptions to the test method, if any, are noted in the report narrative. Results, QC/Cs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Dipo Tomodi — Email: dipo_tomodi@pall.com
FAX Number: ____

No. of Pages (including cover pg): 19

From: Sarah Stubblefield (Lab Manager) — Email: Sarah_Stubblefield@AnnArborTechnicalServices.com
FAX Number: 734-995-3731

Additional Message: Dipo report to: Robinson, Keith (keith_jamieson@pall.com); Brody, Jim (jim_brody@pall.com); Mitchell, Jessica (jessica_mitchell@pall.com); Hoppenstedt, Derek (derek_hoppenstedt@pall.com); Peters, Eric (eric_peters@pall.com); Arancibia Isabelli (mariela_isabelli@pall.com)

Date: 2/4/22 Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-2547.



K:\ORI\1-800-3.2\Misc_Transmittal_Cover_Page_SLS.xls

**LABORATORY OPERATIONS**
**CASE NARRATIVE**

**ATS Project Number: G001-002**
**Report Date: 2/4/22**
**SRF / SDG Number(s): 0128221**
**Client PO Number: 4505089688**

## Case Narrative Summary

This case narrative applies to the following 8 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/28/22, and associated matrix-specific QA/QC:

**Samples**

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/28/22* | | | | |
| Outfall 004 | 1/27/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/28/22 | Urgent | 1,4-Dioxane | Water |
| Combination Effluent | 1/28/22 | Urgent | 1,4-Dioxane | Water |
| SIE-OC-1A | 1/28/22 | Urgent | 1,4-Dioxane | Water |
| SIE-OC-2A | 1/28/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/26/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/28/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/28/22 | 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 | 8 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



*Consultants in Chemistry & Environmental Science*
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0955 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 SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

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

## Data Deliverables

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

## Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed 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:

- None



### 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

### 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 1/27/22

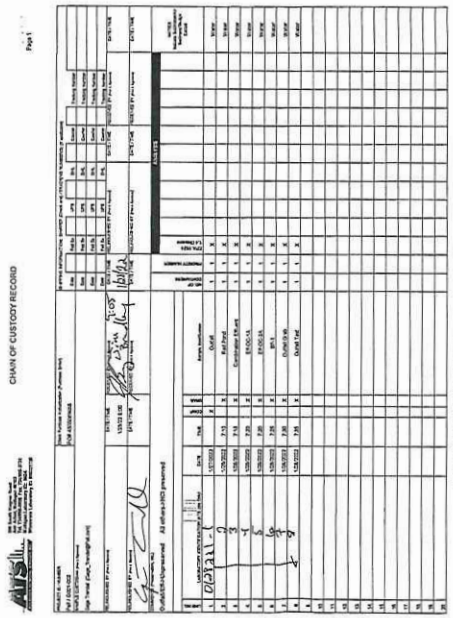
Mark T. DeLong /February 4, 2022

Mark T. DeLong (Quality Assurance Coordinator)

/February 4, 2022

Philip D. Simon (Laboratory Director






**ORGANIC ANALYSIS**
**1,4-Dioxane by GC/MS**
**USEPA 1624**

**ATS Project Number: G001-002.22**

**ATS SDG: 0128221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS EDD Number | 0128221 | Preparation Date | 01/28/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/29/2022 10:36:58 |
| Laboratory Sample ID | 0128221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/27/2022 NA | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0128221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
Sample analyzed at native pH.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS EDD Number | 0128221 | Preparation Date | 01/28/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/29/2022 11:22:46 |
| Laboratory Sample ID | 0128221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/28/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0128221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.38 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.



### 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS EDD Number | 0128221 | Preparation Date | 01/29/2022 |
| Client Sample ID | Combination Effluent | Analysis Date | 01/29/2022 13:34:11 |
| Laboratory Sample ID | 0128221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/28/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0128221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ATS Project Number | G001-002.22 | | | | | | | | |
| ATS SDG Number | 0126221 | | | | | | | | |
| Client Sample ID | 0126221 | | | | | | | | |
| Laboratory Sample ID | 22-0221A | | | | | | | | |
| Matrix | Water | | | | | | | | |
| Sample Date | 01/26/2022 7:20 | | | | | | | | |
| Analytical Method (USEPA) | USEPA 1624 | | | | | | | | |
| Preparation Method (USEPA) | USEPA 1624 | | | | | | | | |
| QC Batch Number | GCORG0126221 | | | | | | | | |
| Parameter | Chemical Identifier | Result | MDL | PQL | Qual | | | | |
| 1,4-Dioxane | 123-91-1 | 0.009 | 0.001 | 0.003 | | | | | |
| | | | Percent Moisture | 100.0 | | | | | |
| | | | Preparation Date | 01/28/2022 | | | | | |
| | | | Analysis Date | 01/28/2022 11:18:00 | | | | | |
| | | | Instrument | 210DV | | | | | |
| | | | Subsample (mL) | 5.000 | | | | | |
| | | | Final Volume (mL) | 5.000 | | | | | |
| | | | Dilution Factor | 1 | | | | | |
| | | | Basis | Wet | | | | | |
| | | | Units | mg/L | | | | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ATS Project Number | G001-002.22 | | | | | | | | |
| ATS SDG Number | 0126221 | | | | | | | | |
| Client Sample ID | 0126221 | | | | | | | | |
| Laboratory Sample ID | 01262214 | | | | | | | | |
| Matrix | Water | | | | | | | | |
| Sample Date | 01/26/2022 7:20 | | | | | | | | |
| Analytical Method (USEPA) | USEPA 1624 | | | | | | | | |
| Preparation Method (USEPA) | USEPA 1624 | | | | | | | | |
| QC Batch Number | GCORG0126221 | | | | | | | | |
| Parameter | Chemical Identifier | Result | MDL | PQL | Qual | | | | |
| 1,4-Dioxane | 123-91-1 | 0.009 | 0.001 | 0.003 | | | | | |
| | | | Percent Moisture | 100.0 | | | | | |
| | | | Preparation Date | 01/28/2022 | | | | | |
| | | | Analysis Date | 01/28/2022 17:13:17 | | | | | |
| | | | Instrument | 210DV | | | | | |
| | | | Subsample (mL) | 5.000 | | | | | |
| | | | Final Volume (mL) | 5.000 | | | | | |
| | | | Dilution Factor | 1 | | | | | |
| | | | Basis | Wet | | | | | |
| | | | Units | mg/L | | | | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## ANN ARBOR TECHNICAL SERVICES, INC.

### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0126221
SDG: 0126221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1/28/22 | 01/28/2022 | 09:56:00 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ATS Project Number | G001-002.22 | | | | | | | | |
| ATS SDG Number | 0126221 | | | | | | | | |
| Client Sample ID | 0126221 | | | | | | | | |
| Laboratory Sample ID | 01262214 | | | | | | | | |
| Matrix | Water | | | | | | | | |
| Sample Date | 01/26/2022 7:20 | | | | | | | | |
| Analytical Method (USEPA) | USEPA 1624 | | | | | | | | |
| Preparation Method (USEPA) | USEPA 1624 | | | | | | | | |
| QC Batch Number | GCORG0126221 | | | | | | | | |
| Parameter | Chemical Identifier | Result | MDL | PQL | Qual | | | | |
| 1,4-Dioxane | 123-91-1 | 0.009 | 0.001 | 0.003 | | | | | |
| | | | Percent Moisture | 100.0 | | | | | |
| | | | Preparation Date | 01/28/2022 | | | | | |
| | | | Analysis Date | 01/28/2022 13:01:00 | | | | | |
| | | | Instrument | 210DV | | | | | |
| | | | Subsample (mL) | 5.000 | | | | | |
| | | | Final Volume (mL) | 5.000 | | | | | |
| | | | Dilution Factor | 1 | | | | | |
| | | | Basis | Wet | | | | | |
| | | | Units | mg/L | | | | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## ANN ARBOR TECHNICAL SERVICES, INC.

### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0126221
SDG: 0126221
Project Number: G001-002.22
Report Date: 2/4/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/28/22 | 01/28/2022 | 08:51:00 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00851 | mg/L | Wet | 85.0 | 85 | 115 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ATS Project Number | G001-002.22 | | | | | | | | |
| ATS SDG Number | 0126221 | | | | | | | | |
| Client Sample ID | 0126221 | | | | | | | | |
| Laboratory Sample ID | 01262214 | | | | | | | | |
| Matrix | Water | | | | | | | | |
| Sample Date | 01/26/2022 7:20 | | | | | | | | |
| Analytical Method (USEPA) | USEPA 1624 | | | | | | | | |
| Preparation Method (USEPA) | USEPA 1624 | | | | | | | | |
| QC Batch Number | GCORG0126221 | | | | | | | | |
| Parameter | Chemical Identifier | Result | MDL | PQL | Qual | | | | |
| 1,4-Dioxane | 123-91-1 | 0.009 | 0.001 | 0.003 | | | | | |
| | | | Percent Moisture | 100.0 | | | | | |
| | | | Preparation Date | 01/28/2022 | | | | | |
| | | | Analysis Date | 01/28/2022 13:01:00 | | | | | |
| | | | Instrument | 210DV | | | | | |
| | | | Subsample (mL) | 5.000 | | | | | |
| | | | Final Volume (mL) | 5.000 | | | | | |
| | | | Dilution Factor | 1 | | | | | |
| | | | Basis | Wet | | | | | |
| | | | Units | mg/L | | | | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## ANN ARBOR TECHNICAL SERVICES, INC.

### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCORG0126221
SDG: 0126221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0126221-2 MS | 01/28/2022 | 12:06:37 | 1,4-Dioxane | 123-91-1 | 0.379 | 0.800 | 1.13 | mg/L | Wet | 94.2 | 85 | 123 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ATS Project Number | G001-002.22 | | | | | | | | |
| ATS SDG Number | 0126221 | | | | | | | | |
| Client Sample ID | 0126221 | | | | | | | | |
| Laboratory Sample ID | 01262214 | | | | | | | | |
| Matrix | Water | | | | | | | | |
| Sample Date | 01/26/2022 7:20 | | | | | | | | |
| Analytical Method (USEPA) | USEPA 1624 | | | | | | | | |
| Preparation Method (USEPA) | USEPA 1624 | | | | | | | | |
| QC Batch Number | GCORG0126221 | | | | | | | | |
| Parameter | Chemical Identifier | Result | MDL | PQL | Qual | | | | |
| 1,4-Dioxane | 123-91-1 | 0.009 | 0.001 | 0.003 | | | | | |
| | | | Percent Moisture | 100.0 | | | | | |
| | | | Preparation Date | 01/28/2022 | | | | | |
| | | | Analysis Date | 01/28/2022 10:29:15 | | | | | |
| | | | Instrument | 210DV | | | | | |
| | | | Subsample (mL) | 5.000 | | | | | |
| | | | Final Volume (mL) | 5.000 | | | | | |
| | | | Dilution Factor | 1 | | | | | |
| | | | Basis | Wet | | | | | |
| | | | Units | mg/L | | | | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
209 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0055
Fax: 734-665-3721

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
GAAQC Batch Number: GCQRS0120221
SDG: 0120221
Project Number: G001-002.22
Report Date: 2/4/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0120221-3 MSD | 01/20/2022 | 13:03:27 | 1,4-Dioxane | 123-91-1 | 0.379 | 0.800 | 1.18 | mg/L | Wet | 102 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Found results reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
GAAQC Batch Number: GCQRS0120221
SDG: 0120221
Project Number: G001-002.22
Report Date: 2/4/2022


**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0120221-2 MS | 01/20/2022 | 12:00:37 | 1,4-Dioxane | 123-91-1 | 1.13 | | mg/L | Wet | | | |
| 0120221-2 MSD | 01/20/2022 | 12:53:27 | 1,4-Dioxane | 123-91-1 | 1.19 | 1.16 | mg/L | Wet | 5.19 | 20 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Found results reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
3966 South Wagner Road
Ann Arbor, Michigan 48105
Tel. 734/995-0200 Fax. 734/995-3731
Michigan Laboratory ID: 9958
Wisconsin Laboratory ID: 998301790

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0117221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 20 water samples, received by ATS on January 17, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 31

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com); Katie Strohauer (kstrohauer@fveng.com), rwoods@fv-operations.com, Peters, Sue Peters (sue_peters@pall.com); Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/28/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





ATS
ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0117221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103



ATS
ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/28/22**
**SRF / SDG Number(s): 0117221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 20 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/17/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 1/17/22* | | | | |
| Outfall 001 | 1/14/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| Creek BP | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| BP-OC-1A | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| BP-OC-2A | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| MW-79d | 1/14/22 | Standard | 1,4-Dioxane | Water |
| MW-79s | 1/14/22 | Standard | 1,4-Dioxane | Water |
| MW-84s | 1/14/22 | Standard | 1,4-Dioxane | Water |
| MW-116 | 1/14/22 | Standard | 1,4-Dioxane | Water |
| MW-115 | 1/14/22 | Standard | 1,4-Dioxane | Water |
| MW-85 | 1/14/22 | Standard | 1,4-Dioxane | Water |
| MW-53d | 1/12/22 | Standard | 1,4-Dioxane | Water |
| MW-53s | 1/12/22 | Standard | 1,4-Dioxane | Water |
| MW-153 | 1/12/22 | Standard | 1,4-Dioxane | Water |
| MW-153s | 1/12/22 | Standard | 1,4-Dioxane | Water |
| MW-153d | 1/12/22 | Standard | 1,4-Dioxane | Water |



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

Upon receipt samples were scheduled for the following analyses.

| Analysis | Number of Samples |
|---|---|
| 1,4-Dioxane (USEPA 1624) – Urgent TAT | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 12 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

### 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 Manual.

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.

*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



ATS

#### 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

#### 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

#### 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 1/17/22
- MW-79s 1/14/22
- MW-84s 1/14/22
- MW-116 1/14/22
- MW-115 1/14/22
- MW-85 1/14/22



ATS

Mark T. DeLong /January 28, 2022

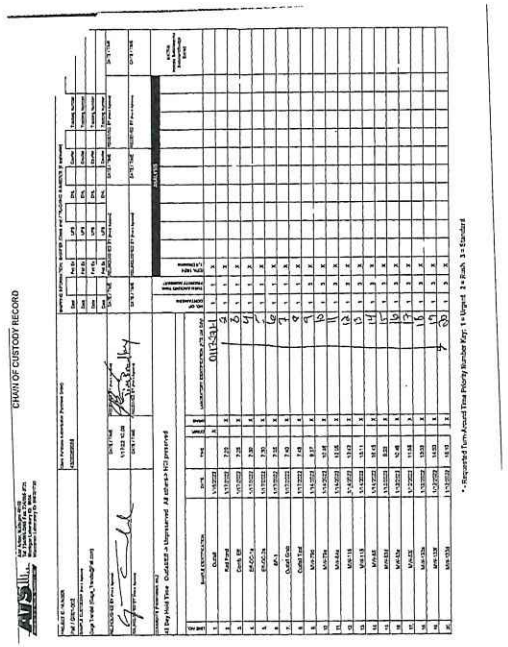
Mark T. DeLong (Quality Assurance Coordinator)

Philip B. Simon /January 28, 2022

Philip B. Simon (Laboratory Director)



ATS




ATS
ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCG0201117221
SDG: 0117221
Project Number: G001-002.22
Report Date: 1/28/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Compound Name | CAS | Result | Units | Result Detection Limit | Reporting Detection Limit | Concentration |
|---|---|---|---|---|---|---|---|---|---|
| LRB 1/17/22 | 1/17/2022 | 11:37:46 | 1,4-Dioxane | 123-91-1 | ND | mg/L | 0.001 | 0.005 | |

Qualifiers:
U - Indicates the analyte was analyzed for but not detected.
J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS011721
EDD: 011721
Project Number: G001-002.22
Report Date: 1/28/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Recovery | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB 011152 | 01/17/2022 | 10:14:51 | 1,4-Dioxane | 123-91-1 | | 0.200 | 0.0203 | ug/L | 102 | 102 | 81 | 111 | |

Comments:
Analysis performed on GC/MS system using Extrel mod.
Final results reported in ug/L.
Project specific reporting limit = 0.200 ug/L per client request.
All criteria were met for this batch per method guidelines.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS011721
EDD: 011721
Project Number: G001-002.22
Report Date: 1/28/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Recovery | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 011721-1245 | 01/17/2022 | 14:13:11 | 1,4-Dioxane | 123-91-1 | 0.342 | 0.800 | 1.13 | ug/L | 98.4 | 98.8 | 81 | 111 | |

Comments:
Analysis performed on GC/MS system using Extrel mod.
Final results reported in ug/L.
Project specific reporting limit = 0.200 ug/L per client request.
All criteria were met for this batch per method guidelines.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS011721
EDD: 011721
Project Number: G001-002.22
Report Date: 1/28/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Recovery | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 011721-1245D | 01/17/2022 | 14:58:23 | 1,4-Dioxane | 123-91-1 | 0.342 | 0.800 | 1.13 | ug/L | 98.4 | 97.4 | 81.9 | 120 | |

Comments:
Analysis performed on GC/MS system using Extrel mod.
Final results reported in ug/L.
Project specific reporting limit = 0.200 ug/L per client request.
All criteria were met for this batch per method guidelines.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCMS011721
EDD: 011721
Project Number: G001-002.22
Report Date: 1/28/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Found | Found | Units | Units | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 011721-1245 | 01/17/2022 | 14:13:11 | 1,4-Dioxane | 123-91-1 | 1.13 | 1.13 | ug/L | ug/L | 0.0 | 25 | |
| 011721-1245D | 01/17/2022 | 14:58:23 | 1,4-Dioxane | 123-91-1 | 1.13 | 1.11 | ug/L | ug/L | 1.75 | | |

Comments:
Analysis performed on GC/MS system using Extrel mod.
Final results reported in ug/L.
Project specific reporting limit = 0.200 ug/L per client request.
All criteria were met for this batch per method guidelines.


290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9934
Wisconsin Laboratory ID: 998291720


## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0118221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 12 water samples, received by ATS on January 18, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trandel — **Email:** gage_trandel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 23

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Kelle Stinhauer (kstinhauer@hwng.com), hwnotic@hv-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/26/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0118221**


**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103


## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/28/22**
**SRF / SDG Number(s): 0118221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 12 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/18/22, and associated matrix-specific QA/QC.

**Samples**

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 1/18/22* | | | | |
| Outfall 001 | 1/17/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| INF-1 | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| MW-11b | 1/17/22 | Standard | 1,4-Dioxane | Water |
| MW-11D | 1/17/22 | Standard | 1,4-Dioxane | Water |
| MW-7G | 1/17/22 | Standard | 1,4-Dioxane | Water |
| MW-7ia | 1/17/22 | 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 | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 4 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

### 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, SFK), and duplicates whether spiked or native (MSD, SFK 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 ng/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

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G1115221
SDG: G1115221
Project Number: G001-002.22
Report Date: 1/25/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1115221-2 MS | 01/18/2022 | 18:21:19 | 1,4-Dioxane | 123-91-1 | 0.399 | 0.800 | 1.00 | mg/L | Wet | 75.2 | 50 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (PCL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

GM01-ORG31-NON_G1115221.doc

## QA/QC Batch Summaries

**Internal Standards**

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

- None

**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:

| Lab Sample ID | Analyte | Parent Inventory | Acceptance Limits |
|---|---|---|---|
| G1115221-2MS | 1,4-Dioxane | 737 | 50-120% |

**Matrix Duplicates**

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

- None

GM01-ORG31-NON_G1115221.doc

**Sample Dilutions**

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

- Red Pond 1/18/22
- MW-7BI 1/14/22
- MW-7Ba 1/14/22

Mark T. DeLong (Quality Assurance Coordinator) / January 24, 2022

Philip D. Simon (Laboratory Director) / January 24, 2022


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G1115221
SDG: G1115221
Project Number: G001-002.22
Report Date: 1/25/2022


**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1115221-2 MSD | 01/18/2022 | 18:55:55 | 1,4-Dioxane | 123-91-1 | 0.399 | 0.800 | 1.12 | mg/L | Wet | 90.5 | 50 | 120 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (PCL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.



## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G1115221
SDG: G1115221
Project Number: G001-002.22
Report Date: 1/25/2022


**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/18/22 | 01/18/2022 | 13:53:19 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00928 | mg/L | Wet | 92.8 | 65 | 115 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (PCL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.



300 South Wagner Road
Ann Arbor, Michigan 48103
Phone: (734) 769-3100 FAX: (734) 769-3164
Georgia Laboratory Dr. West
Elkmont Laboratory, AL 35620


## CHAIN OF CUSTODY RECORD

PROJECT ID / NUMBER: Fall / G001-002
Dept Purchase Authorization (Purchase Order): 4500838884
SHIPPING INFORMATION: SHIPPED (Date and / TRACKING NUMBER) [if applicable]

| | | | | | |
|---|---|---|---|---|---|
| Date | Fed Ex | UPS | DHL | Courier | Tracking Number |
| Date | Fed Ex | UPS | DHL | Courier | Tracking Number |
| Date | Fed Ex | UPS | DHL | Courier | Tracking Number |
| Date | Fed Ex | UPS | DHL | Courier | Tracking Number |

SAMPLE COLLECTIONS (Print Name): Dale Trenker (Dale_Trenker@fuji.com)

RELINQUISHED BY (Print Name): [signature] — DATE / TIME: 1/18/22 10:30
RECEIVED BY (Print Name): [signature] — DATE / TIME: 1/18/22 10:30
RELINQUISHED BY (Print Name): [signature] — DATE / TIME: 1/19/22 11:42
RECEIVED BY (Print Name): [signature] — DATE / TIME: 1/19/22 11:42
RELINQUISHED BY (Print Name): — DATE / TIME:
RECEIVED BY (Print Name): — DATE / TIME:

COMMENTS (Preservation, etc.): 48 Day Hold Time Dup5/6/8 -> Unpreserved All others-> HCl preserved

ANALYSIS

| Sample # | Sample # / Identification | Date | Time | Grab | Composite | Lab Use Only (Sample Condition) | Matrix (WW, DW, SW, SL, SO, OL) | 1,4-Dioxane | | | | | | | | | | | | | | | | | Sample Archive (Until Specified Date/Hold Before Disposal) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Outfall | 1/17/2022 | | X | | | | dilute all - 1 | | | | | | | | | | | | | | | | | |
| 2. | Red Pond | 1/18/2022 | 7:20 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 3. | Comb. Eff. | 1/18/2022 | 7:25 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 4. | EX-OC-1a | 1/18/2022 | 7:30 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 5. | EX-OC-2a | 1/18/2022 | 7:30 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 6. | BA-1 | 1/18/2022 | 7:35 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 7. | Outfall Drift | 1/18/2022 | 7:40 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 8. | Outfall Trail | 1/18/2022 | 7:45 | | X | | 1 | 1 | X | | | | | | | | | | | | | | | | |
| 9. | MW-11Da | 1/17/2022 | 10:58 | | X | | 1 | 3 | X | | | | | | | | | | | | | | | | |
| 10. | MW-11S | 1/17/2022 | 12:12 | | X | | 1 | 3 | X | | | | | | | | | | | | | | | | |
| 11. | MW-7B | 1/17/2022 | 13:45 | | X | | 1 | 3 | X | | | | | | | | | | | | | | | | |
| 12. | MW-7Ba | 1/17/2022 | 14:51 | | X | | 1 | 3 | X | | | | | | | | | | | | | | | | |
| 13. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 14. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 15. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 16. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 17. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 18. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 19. | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 20. | | | | | X | | | | | | | | | | | | | | | | | | | | |

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G1115221
SDG: G1115221
Project Number: G001-002.22
Report Date: 1/25/2022


**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G1115221-2 MS | 01/18/2022 | 18:21:19 | 1,4-Dioxane | 123-91-1 | 1.00 | | mg/L | Wet | | | |
| G1115221-2 MSD | 01/18/2022 | 18:55:55 | 1,4-Dioxane | 123-91-1 | 1.12 | 1.06 | mg/L | Wet | 11.5 | 20 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (PCL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G1115221
SDG: G1115221
Project Number: G001-002.22
Report Date: 1/25/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1/18/22 | 01/18/2022 | 13:28:44 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (PCL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3721
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321750

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0119221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 14 water samples, received by ATS on January 19, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 25

**From:** Sarah Stubblefield, Senior Chemist / Lab Manager — **Email:** Sarah.Stubblefield@AnnArborTechnicalServices.com — **FAX Number:** 734-995-3721

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Katie Strohauer (kstrohauer@fveng.com), rwoods@fr-operations.com, Peters, Gus Peters (aus_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/28/22 **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0119221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/28/22**
**SRF / SDG Number(s): 0119221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 14 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/19/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/19/22* | | | | |
| Outfall 001 | 1/18/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| Outfall (Dup) | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| MW-130s | 1/18/22 | Standard | 1,4-Dioxane | Water |
| MW-131i | 1/18/22 | Standard | 1,4-Dioxane | Water |
| MW-131d | 1/18/22 | Standard | 1,4-Dioxane | Water |
| MW-123d | 1/18/23 | Standard | 1,4-Dioxane | Water |
| MW-123s | 1/18/22 | Standard | 1,4-Dioxane | Water |
| MW-107 | 1/18/23 | 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 | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 6 Samples |



*Consultants in Chemistry & Environmental Science*
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3721

### 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.

### 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



### QA/QC Batch Summary

#### Internal Standards

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

- None

#### 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



### 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 1/19/22
- MW-107 1/18/22

/January 28, 2022

Mark T. DeLong (Quality Assurance Coordinator)

/January 28, 2022

Philip B. Simon (Laboratory Director)



CHAIN OF CUSTODY RECORD

*, Requested Turn Around Time Priority Rusher Key: 1 = Urgent 2 = Rush 3 = Standard

## ANN ARBOR TECHNICAL SERVICES, INC.
### QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
### LABORATORY BLANK SUMMARY

Method: USEPA 1624
QA/QC Batch Number: 0119221
SDG: 0119221
Project Number: G001-002.22
Report Date: 1/28/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemist Name | CAS | Result | Lock | Units | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0119221-LRB | 01/21/22 | 09:47 | Lab Users | 123-91-1 | ND | MB | ug/L | 0.21 | 1.0 | |

Comments:
Qualifiers: B = Analyte detected in the associated Method Blank
E = Analyte concentration exceeds the upper level of the calibration range
N = Presumptive evidence based on MS library search (per analyst review)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCQC(s)110221
SDG: 0110221
Project Number: G001-002.22
Report Date: 1/28/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

| Lab Sample ID | Analysis Date | Analysis Time | Chemist Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB 110-1420 | 01/19/2022 | 08:08:38 | 1,4-Dioxane | 123-91-1 | | 10.000 | 9.2958 | ug/L | wet | 93.0 | 70 | 130 | |

Comments:
Analysis performed on a DB-624 column.
Results are reported on a wet weight basis.
Flagged values are not applicable.
N = Indicates analyte eluting in the dioxane window.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCQC(s)110221
SDG: 0110221
Project Number: G001-002.22
Report Date: 1/28/2022

Matrix Spike (MS)

| Lab Sample ID | Analysis Date | Analysis Time | Chemist Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0110221-1MS | 01/19/2022 | 11:58:28 | 1,4-Dioxane | 123-91-1 | 0.347 | 0.500 | 1.27 | ug/L | wet | 84.6 | 70 | 130 | |

Comments:
Analysis performed on a DB-624 column.
Results are reported on a wet weight basis.
Flagged values are not applicable.
N = Indicates analyte eluting in the dioxane window.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCQC(s)110221
SDG: 0110221
Project Number: G001-002.22
Report Date: 1/28/2022

Matrix Spike Duplicate (MSD)

| Lab Sample ID | Analysis Date | Analysis Time | Chemist Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0110221-1MSD | 01/19/2022 | 12:43:13 | 1,4-Dioxane | 123-91-1 | 0.347 | 0.500 | 1.31 | ug/L | wet | 91.4 | 70 | 130 | |

Comments:
Analysis performed on a DB-624 column.
Results are reported on a wet weight basis.
Flagged values are not applicable.
N = Indicates analyte eluting in the dioxane window.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: GCQC(s)110221
SDG: 0110221
Project Number: G001-002.22
Report Date: 1/28/2022

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

| Lab Sample ID | Analysis Date | Analysis Time | Chemist Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0110221-1MS | 01/19/2022 | 11:58:28 | 1,4-Dioxane | 123-91-1 | 1.27 | 1.29 | ug/L | wet | 3.10 | 20 | |
| 0110221-1MSD | 01/19/2022 | 12:43:13 | 1,4-Dioxane | 123-91-1 | 1.31 | | ug/L | wet | | | |

Comments:
Analysis performed on a DB-624 column.
Results are reported on a wet weight basis.
Flagged values are not applicable.
N = Indicates analyte eluting in the dioxane window.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/995-0900 Fax: 734/995-3731
Michigan Laboratory ID: 9034
Wisconsin Laboratory ID: 998321720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0120221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 12 water samples, received by ATS on January 20, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Gage Trendel — Email: gage_trendel@pall.com
FAX Number:

No. of Pages (including cover pg.): 23

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

Additional Message: Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Kelle Strohauer (kstrohauer@tveng.com), rwoods@fv-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

Date: 1/28/22 Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0900.





ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0120221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/28/22**
**SRF / SDG Number(s): 0120221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 12 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/20/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Revised 1/20/22* | | | | |
| Outfall 001 | 1/19/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| Creek YtF | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| YtF-OC-1A | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| YtF-OC-2A | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| YtF-1 | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| MW-103d | 1/19/22 | Standard | 1,4-Dioxane | Water |
| MW-107s | 1/19/22 | Standard | 1,4-Dioxane | Water |
| MW-104 | 1/19/22 | Standard | 1,4-Dioxane | Water |
| MW-110 | 1/19/22 | Standard | 1,4-Dioxane | Water |

Upon receipt samples were scheduled for the following analyses.

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

Number of Samples
- 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate
- 4 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

### 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 (IS, 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.

*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

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G3122221
SDG: 0122221
Project Number: G001-002.22
Report Date: 1/25/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 122/22 | 01/20/2022 | 13:34:29 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00901 | mg/L | Wet | 90.7 | 68 | 113 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

### QA/QC Batch Summary

**Internal Standards**

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

- None

**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

G001-002.22\QA_01202022.doc

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G3122221
SDG: 0122221
Project Number: G001-002.22
Report Date: 1/25/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0122221-2 MS | 01/20/2022 | 16:28:52 | 1,4-Dioxane | 123-91-1 | 0.347 | 0.800 | 1.12 | mg/L | Wet | 96.8 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

### Sample Dilutions

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

- Bad Pond 1/20/22
- MW-102s 1/20/22
- MW-110 1/20/22

Mark T. DeLong (Quality Assurance Coordinator) / January 25, 2022

Philip D. Simon (Laboratory Director) / January 25, 2022

G001-002.22\QA_01202022.doc

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

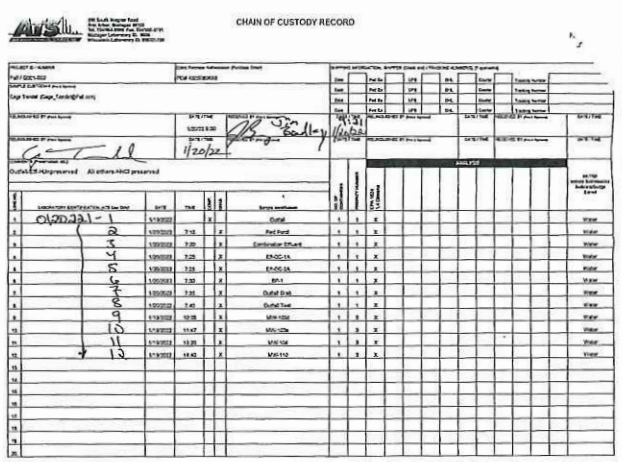
Method: USEPA 1624
QA/QC Batch Number: QCOR/G3122221
SDG: 0122221
Project Number: G001-002.22
Report Date: 1/25/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0122221-3 MSD | 01/20/2022 | 17:13:37 | 1,4-Dioxane | 123-91-1 | 0.347 | 0.800 | 1.13 | mg/L | Wet | 97.2 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## CHAIN OF CUSTODY RECORD



* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G3122221
SDG: 0122221
Project Number: G001-002.22
Report Date: 1/25/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0122221-2 MS | 01/20/2022 | 16:28:52 | 1,4-Dioxane | 123-91-1 | 1.12 | | mg/L | Wet | | | |
| 0122221-3 MSD | 01/20/2022 | 17:13:37 | 1,4-Dioxane | 123-91-1 | 1.13 | 1.12 | mg/L | Wet | 0.249 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G3122221
SDG: 0122221
Project Number: G001-002.22
Report Date: 1/25/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 122/22 | 01/20/2022 | 14:18:22 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9052
Wisconsin Laboratory ID: 998281720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0121221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 11 water samples, received by ATS on January 21, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 22

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Broda, Jim (jim_broda@pall.com)
Kaite Stinhauser (kstinhauser@tetratech.com), rwoods@tt-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/28/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





ATS
ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0121221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ATS
ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/28/22**
**SRF / SDG Number(s): 0121221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 11 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/21/22, and associated matrix-specific QA/QC:

**Samples**

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/21/22* | | | | |
| Outfall 001 | 1/20/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff. | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Comb | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/21/22 | Urgent | 1,4-Dioxane | Water |
| MW-119 | 1/20/22 | Standard | 1,4-Dioxane | Water |
| MW-88 | 1/20/22 | Standard | 1,4-Dioxane | Water |
| MW-101 | 1/20/22 | 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 | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 3 Samples |



*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 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 (IIS, 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.

*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:

- None

#### 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



### Sample Dilutions

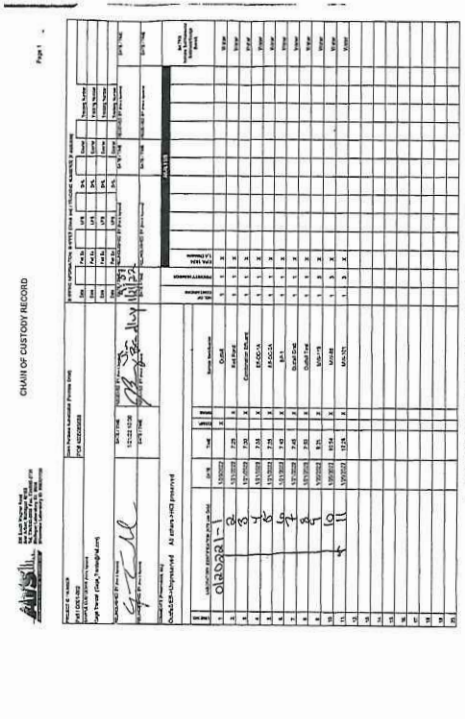
Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- Red Pond 1/21/02
- MW-88 1/20/22
- MW-101 1/20/22

Mark T. DeLong (Quality Assurance Coordinator) / January 28, 2022

Philip B. Simon (Laboratory Director) / January 28, 2022






ATS
ANN ARBOR TECHNICAL SERVICES, INC.
QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY BLANK SUMMARY

Method: USEPA 1624
SDG/Batch Number: SDG0121221
Project Number: G001-002.22
Report Date: 1/28/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Report Detection Limit | Regulatory Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|
| LRB-157103 | 1/21/2022 | 13:26 | 1,4-Dioxane | 123-91-1 | ND | ug/L | 0.200 | 0.200 | |

Reviewed by:
Signature: [signature]
Date: 1/28/2022
Printed Name: Mark T. DeLong
Title: Quality Assurance Coordinator

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0121221
SDG: 0121221
Project Number: 0001-002.22
Report Date: 1/25/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/21/22 | 01/21/2022 | 09:30:45 | 1,4-Dioxane | 123-91-1 | | 0.5100 | 0.4504 | mg/L | Wet | 84.9 | 60 | 119 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ATS Project Number | 0001-002.22 | | | | | | |
| ATS SDG Number | 0121221 | | | | | | |
| Client Sample ID | 0121221-2 MS | | | | | | |
| Laboratory Sample ID | 0121221-2 MS | | | | | | |
| Matrix | Water | | | | | | |
| Sample Date | 01/21/2022 12:43:37 | | | | | | |
| Analytical Method (USEPA) | 1624 | | | | | | |
| Preparation Method (USEPA) | 1624 | | | | | | |
| QC Batch Number | QCORG0121221 | | | | | | |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.935 | 0.001 | 0.100 | |

| | |
|---|---|
| Percent Moisture | 100.0 |
| Preparation Date | 01/17/2022 10:43:00 |
| Analysis Date | 01/21/2022 12:43:37 |
| Instrument | 21000V |
| Subsample (mL) | 5.000 |
| Final Volume (mL) | 5.000 |
| Dilution Factor | 1 |
| Basis | Wet |
| Units | mg/L |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0121221
SDG: 0121221
Project Number: 0001-002.22
Report Date: 1/25/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0121221-2 MS | 01/21/2022 | 12:43:37 | 1,4-Dioxane | 123-91-1 | 0.303 | 0.500 | 1.12 | mg/L | Wet | 95.0 | 60 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ATS Project Number | 0001-002.22 | | | | | | |
| ATS SDG Number | 0121221 | | | | | | |
| Client Sample ID | 0121221-2 MS | | | | | | |
| Laboratory Sample ID | 0121221-2 MS | | | | | | |
| Matrix | Water | | | | | | |
| Sample Date | 01/21/2022 12:43:37 | | | | | | |
| Analytical Method (USEPA) | 1624 | | | | | | |
| Preparation Method (USEPA) | 1624 | | | | | | |
| QC Batch Number | QCORG0121221 | | | | | | |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.935 | 0.001 | 0.100 | |

| | |
|---|---|
| Percent Moisture | 100.0 |
| Preparation Date | 01/17/2022 10:43:00 |
| Analysis Date | 01/21/2022 12:43:37 |
| Instrument | 21000V |
| Subsample (mL) | 5.000 |
| Final Volume (mL) | 5.000 |
| Dilution Factor | 1 |
| Basis | Wet |
| Units | mg/L |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0121221
SDG: 0121221
Project Number: 0001-002.22
Report Date: 1/25/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0121221-2 MSD | 01/21/2022 | 13:33:23 | 1,4-Dioxane | 123-91-1 | 0.303 | 0.500 | 1.27 | mg/L | Wet | 113 | 60 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ATS Project Number | 0001-002.22 | | | | | | |
| ATS SDG Number | 0121221 | | | | | | |
| Client Sample ID | 0121221-2 MSD | | | | | | |
| Laboratory Sample ID | 0121221-2 MSD | | | | | | |
| Matrix | Water | | | | | | |
| Sample Date | 01/21/2022 13:33:23 | | | | | | |
| Analytical Method (USEPA) | 1624 | | | | | | |
| Preparation Method (USEPA) | 1624 | | | | | | |
| QC Batch Number | QCORG0121221 | | | | | | |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 1.27 | 0.001 | 0.100 | |

| | |
|---|---|
| Percent Moisture | 100.0 |
| Preparation Date | 01/17/2022 10:43:00 |
| Analysis Date | 01/21/2022 13:33:23 |
| Instrument | 21000V |
| Subsample (mL) | 5.000 |
| Final Volume (mL) | 5.000 |
| Dilution Factor | 1 |
| Basis | Wet |
| Units | mg/L |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0121221
SDG: 0121221
Project Number: 0001-002.22
Report Date: 1/25/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Pass A | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0121221-2 MS | 01/21/2022 | 12:43:37 | 1,4-Dioxane | 123-91-1 | 1.12 | | mg/L | Wet | | | |
| 0121221-2 MSD | 01/21/2022 | 13:33:23 | 1,4-Dioxane | 123-91-1 | 1.27 | 1.20 | mg/L | Wet | 12.3 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-665-0855
Fax: 734-665-0721

## 1,4-Dioxane by GC/MS
Data Summary Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ATS Project Number | 0001-002.22 | | | | | | |
| ATS SDG Number | 0121221 | | | | | | |
| Client Sample ID | 0121221-2 MS | | | | | | |
| Laboratory Sample ID | 0121221-2 MS | | | | | | |
| Matrix | Water | | | | | | |
| Sample Date | 01/21/2022 12:43:37 | | | | | | |
| Analytical Method (USEPA) | 1624 | | | | | | |
| Preparation Method (USEPA) | 1624 | | | | | | |
| QC Batch Number | QCORG0121221 | | | | | | |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.935 | 0.001 | 0.100 | |

| | |
|---|---|
| Percent Moisture | 100.0 |
| Preparation Date | 01/17/2022 17:24:14 |
| Analysis Date | 01/21/2022 12:43:37 |
| Instrument | 21000V |
| Subsample (mL) | 5.000 |
| Final Volume (mL) | 5.000 |
| Dilution Factor | 1 |
| Basis | Wet |
| Units | mg/L |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/17/2022 18:36:01 |
| Laboratory Sample ID | 0117221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/17/2022 19:21:45 |
| Laboratory Sample ID | 0117221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.008 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0118221 | Preparation Date | 01/18/2022 |
| Client Sample ID | Comb. Ctr. | Analysis Date | 01/18/2022 16:48:57 |
| Laboratory Sample ID | 0118221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0118221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0118221 | Preparation Date | 01/18/2022 |
| Client Sample ID | Off-OO-1a | Analysis Date | 01/18/2022 17:32:41 |
| Laboratory Sample ID | 0118221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0118221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.003 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sum the analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0118221 | Preparation Date | 01/18/2022 |
| Client Sample ID | Off-OO-2a | Analysis Date | 01/18/2022 18:18:27 |
| Laboratory Sample ID | 0118221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0118221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0118221 | Preparation Date | 01/18/2022 |
| Client Sample ID | Off-I | Analysis Date | 01/18/2022 19:00:11 |
| Laboratory Sample ID | 0118221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0118221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0118221 | Preparation Date | 01/18/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/18/2022 19:44:00 |
| Laboratory Sample ID | 0118221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0118221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0118221 | Preparation Date | 01/18/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/18/2022 20:27:42 |
| Laboratory Sample ID | 0118221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0118221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | Comb. Eff. | Analysis Date | 01/19/2022 13:34:05 |
| Laboratory Sample ID | 0119221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | FB-OC-1a | Analysis Date | 01/19/2022 14:07:53 |
| Laboratory Sample ID | 0119221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | EB-OC-1a | Analysis Date | 01/19/2022 14:51:42 |
| Laboratory Sample ID | 0119221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | SP-1 | Analysis Date | 01/19/2022 15:30:28 |
| Laboratory Sample ID | 0119221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/19/2022 16:19:15 |
| Laboratory Sample ID | 0119221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/19/2022 17:02:57 |
| Laboratory Sample ID | 0119221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | Combination Effluent | Analysis Date | 01/20/2022 17:57:23 |
| Laboratory Sample ID | 0120221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | EB-OC-1A | Analysis Date | 01/20/2022 18:41:09 |
| Laboratory Sample ID | 0120221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M = Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | Effl-DO-2A | Analysis Date | 01/20/2022 19:24:54 |
| Laboratory Sample ID | 0120221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | SP-1 | Analysis Date | 01/20/2022 20:08:41 |
| Laboratory Sample ID | 0120221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/20/2022 20:52:20 |
| Laboratory Sample ID | 0120221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/20/2022 21:33:53 |
| Laboratory Sample ID | 0120221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Combination Effluent | Analysis Date | 01/21/2022 14:17:11 |
| Laboratory Sample ID | 0121221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Effl-DO-1A | Analysis Date | 01/21/2022 15:00:56 |
| Laboratory Sample ID | 0121221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Effl-DO-2A | Analysis Date | 01/21/2022 15:44:36 |
| Laboratory Sample ID | 0121221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | SP-1 | Analysis Date | 01/21/2022 16:28:24 |
| Laboratory Sample ID | 0121221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/21/2022 17:12:14 |
| Laboratory Sample ID | 0121221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/21/2022 17:56:02 |
| Laboratory Sample ID | 0121221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:50 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/17/2022 12:41:08 |
| Laboratory Sample ID | 0117221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/16/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/17/2022 13:31:15 |
| Laboratory Sample ID | 0117221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.39 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-7bl | Analysis Date | 01/17/2022 20:65:31 |
| Laboratory Sample ID | 0117221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 9:37 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-7da | Analysis Date | 01/17/2022 20:49:11 |
| Laboratory Sample ID | 0117221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 10:46 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.26 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-84a | Analysis Date | 01/17/2022 21:32:45 |
| Laboratory Sample ID | 0117221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 12:05 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.22 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-11d | Analysis Date | 01/17/2022 22:16:21 |
| Laboratory Sample ID | 0117221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 13:42 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.65 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-11D | Analysis Date | 01/17/2022 22:59:54 |
| Laboratory Sample ID | 0117221-13 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 10:11 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.47 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-6D | Analysis Date | 01/17/2022 23:43:25 |
| Laboratory Sample ID | 0117221-14 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 16:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.53 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-53d | Analysis Date | 01/18/2022 00:26:46 |
| Laboratory Sample ID | 0117221-15 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 9:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.001 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-53s | Analysis Date | 01/18/2022 05:57:11 |
| Laboratory Sample ID | 0117221-16 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 10:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-6D | Analysis Date | 01/18/2022 01:53:43 |
| Laboratory Sample ID | 0117221-17 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 11:56 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-13a | Analysis Date | 01/18/2022 02:37:14 |
| Laboratory Sample ID | 0117221-18 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 13:32 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.002 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-13D | Analysis Date | 01/18/2022 03:20:44 |
| Laboratory Sample ID | 0117221-19 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 14:50 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.002 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0117221 | Preparation Date | 01/17/2022 |
| Client Sample ID | MW-13d | Analysis Date | 01/18/2022 04:04:14 |
| Laboratory Sample ID | 0117221-20 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 16:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0117221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/16/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/16/2022 13:53:36 |
| Laboratory Sample ID | 0116221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/16/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/16/2022 14:37:29 |
| Laboratory Sample ID | 0116221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/15/2022 7:26 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.40 | 0.04 | | M |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/16/2022 |
| Client Sample ID | MW-113a | Analysis Date | 01/16/2022 21:11:22 |
| Laboratory Sample ID | 0116221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 10:58 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.003 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/16/2022 |
| Client Sample ID | MW-113 | Analysis Date | 01/16/2022 21:54:56 |
| Laboratory Sample ID | 0116221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 12:13 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.008 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/16/2022 |
| Client Sample ID | MW-78 | Analysis Date | 01/16/2022 22:36:31 |
| Laboratory Sample ID | 0116221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 13:43 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.069 | 0.005 | | M |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/16/2022 |
| Client Sample ID | MW-78a | Analysis Date | 01/16/2022 22:22:03 |
| Laboratory Sample ID | 0116221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/17/2022 14:51 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.28 | 0.01 | | M |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/19/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/19/2022 10:05:07 |
| Laboratory Sample ID | 0116221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/18/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0116221 | Preparation Date | 01/19/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/19/2022 11:12:39 |
| Laboratory Sample ID | 0116221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0116221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.35 | 0.04 | | M |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
280 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | MW-130s | Analysis Date | 01/19/2022 17:46:48 |
| Laboratory Sample ID | 0119221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 9:12 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | MW-139 | Analysis Date | 01/19/2022 18:30:28 |
| Laboratory Sample ID | 0119221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 10:36 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | MW-139d | Analysis Date | 01/19/2022 19:14:29 |
| Laboratory Sample ID | 0119221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 11:22 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | MW-123d | Analysis Date | 01/19/2022 19:58:15 |
| Laboratory Sample ID | 0119221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 12:48 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | MW-123s | Analysis Date | 01/19/2022 20:41:53 |
| Laboratory Sample ID | 0119221-13 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 13:58 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0119221 | Preparation Date | 01/19/2022 |
| Client Sample ID | MW-107 | Analysis Date | 01/19/2022 21:23:25 |
| Laboratory Sample ID | 0119221-14 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 15:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0119221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.09 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/20/2022 15:02:13 |
| Laboratory Sample ID | 0120221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 11/1/1975 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.003 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0120221 | Preparation Date | 01/20/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/20/2022 13:46:02 |
| Laboratory Sample ID | 0120221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0120221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.35 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/20/2022 |
| Client Sample ID | MW-103d | Analysis Date | 01/20/2022 22:19:23 |
| Laboratory Sample ID | 0126221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 10:36 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDHG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/20/2022 |
| Client Sample ID | MW-103s | Analysis Date | 01/20/2022 23:02:50 |
| Laboratory Sample ID | 0126221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 11:47 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDHG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.081 | 0.005 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/20/2022 |
| Client Sample ID | MW-104 | Analysis Date | 01/20/2022 23:46:16 |
| Laboratory Sample ID | 0126221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 13:28 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDHG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.074 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0126221 | Preparation Date | 01/20/2022 |
| Client Sample ID | MW-110 | Analysis Date | 01/21/2022 00:29:46 |
| Laboratory Sample ID | 0126221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/19/2022 14:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDHG0126221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.12 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/21/2022 11:21:57 |
| Laboratory Sample ID | 0121221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | Rec Pond | Analysis Date | 01/21/2022 12:05:45 |
| Laboratory Sample ID | 0121221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/21/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.36 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | MW-119 | Analysis Date | 01/21/2022 18:38:00 |
| Laboratory Sample ID | 0121221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 9:31 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDHG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.029 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | MW-80 | Analysis Date | 01/24/2022 16:43:01 |
| Laboratory Sample ID | 0121221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 10:54 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.14 | 0.005 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-022.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0121221 | Preparation Date | 01/21/2022 |
| Client Sample ID | MW-101 | Analysis Date | 01/24/2022 19:27:40 |
| Laboratory Sample ID | 0121221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/20/2022 12:26 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | GCDP0121221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.069 | 0.055 | | M |

Comments:
All methods reference 123 CFR, methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (PRL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0555
Fax: 734-995-3731

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0993 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0104221
**Client PO Number:** 4504293919

**Project Description:** This data report contains the results of 12 water samples, received by ATS on January 4, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 24

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

**Additional Message:** Copy report to Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com) Katie Strohauer (kstrohauer@tvenv.com), rwoods@tv-operations.com, Peters, Sue Peters (sue_peters@pall.com) Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/14/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0993.





# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0104221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/14/22**
**SRF / SDG Number(s): 0104221**
**Client PO Number: 4504293919**

### Case Narrative Summary

This case narrative applies to the following 12 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/4/22, and associated matrix-specific QA/QC.

**Samples**

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 1/4/22* | | | | |
| Outfall 001 | 12/10/21 | Urgent | 1,4-Dioxane | Water |
| Outfall 001 | 1/2/22 | Urgent | 1,4-Dioxane | Water |
| Outfall 001 | 1/3/22 | Urgent | 1,4-Dioxane | Water |
| Creek Iff | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Iff-OC-1A | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Iff-OC-2A | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Trvl | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Wash Water LCW-W | 12/10/21 | Urgent | 1,4-Dioxane | Water |
| Wash Water LCW-B | 12/10/21 | 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 | 12 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |



*Consultants in Chemistry & Environmental Science*
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0993 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 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.

### 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:*

- **Due to the potential for foaming, antifoam was added both wash water samples**
- **Wash water LCW-B was analyzed on a 1:10 dilution due to excessive foaming**

### 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

#### 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



### 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 1/4/22

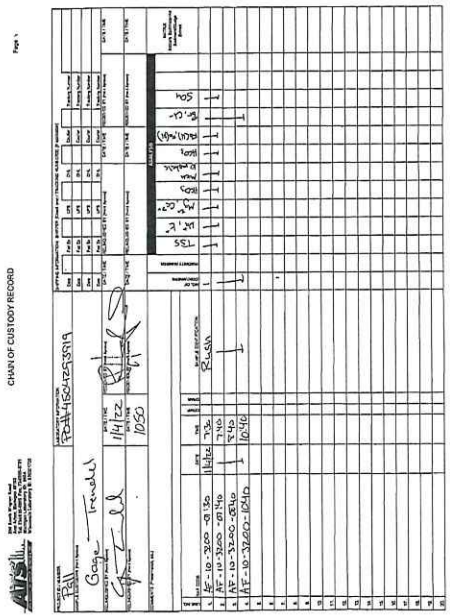
Mark T. DeLong /January 14, 2022

Mark T. DeLong (Quality Assurance Coordinator)

Phillip D. Simon /January 14, 2022

Phillip D. Simon (Laboratory Director)






**ANN ARBOR TECHNICAL SERVICES, INC.**
**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Lab Id: OSEPA 1624
QC Batch Number: 0104221
Date: 1/14/21
Project Number: G001-002.22
Report Date: 1/14/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Compound Name | CAS | Result | Units | Result Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|
| LB 011422 | 01/14/2022 | 0818:23 | 1,4-Dioxane | 123-91-1 | | ug/L | 0.851 | | |

Comments:
Reporting Limit (RL) = Lowest Calibration Standard
Method Detection Limit (MDL) = RL x 0.29
Results are reported to the MDL and flagged with an asterisk between the MDL and RL.
A Limited Quality Control Level analysis was performed on this batch.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGP0/134021
SDG: 0104231
Project Number: G001-002.22
Report Date: 1/14/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Date Added | Theoretical Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB 11432 | 01/04/2022 | 08:58:00 | 1,4-Dioxane | 123-91-1 | | 01/04 | 2.00201 | ng/L | WW | 82.1 | 69 | 110 | |

Comments:
Analytical Batch is 21 sample maximum.
Analytical sequence is LFB, matrix spike/duplicate pair, analytical blank.
Matrix spike/duplicate pair is run every 20 samples per matrix.
A minimum control frequency of 5% blank per batch also applies.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGP0/134021
SDG: 0104231
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Date Added | Theoretical Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 104231-1MS | 01/05/2022 | 03:33:00 | 1,4-Dioxane | 123-91-1 | 0.00 | 01/05 | 1.00 | ng/L | WW | 107 | 69 | 130 | |

Comments:
Analytical Batch is 21 sample maximum.
Analytical sequence is LFB, matrix spike/duplicate pair, analytical blank.
Matrix spike/duplicate pair is run every 20 samples per matrix.
A minimum control frequency of 5% blank per batch also applies.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGP0/134021
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Date Added | Theoretical Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 105221-1MSD | 01/05/2022 | 03:15:00 | 1,4-Dioxane | 123-91-1 | 0.00 | 01/05 | 1.00 | ng/L | WW | 94.0 | 69 | 130 | |

Comments:
Analytical Batch is 21 sample maximum.
Analytical sequence is LFB, matrix spike/duplicate pair, analytical blank.
Matrix spike/duplicate pair is run every 20 samples per matrix.
A minimum control frequency of 5% blank per batch also applies.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGP0/134021
SDG: 0104231
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Date Added | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 104231-1MS | 01/05/2022 | 03:33:34 | 1,4-Dioxane | 123-91-1 | 1.22 | 01/05 | ng/L | WW | 1.79 | 20 | |
| 105221-1MSD | 01/05/2022 | 03:15:02 | 1,4-Dioxane | 123-91-1 | 1.24 | 01/05 | ng/L | WW | | | |

Comments:
Analytical Batch is 21 sample maximum.
Analytical sequence is LFB, matrix spike/duplicate pair, analytical blank.
Matrix spike/duplicate pair is run every 20 samples per matrix.
A minimum control frequency of 5% blank per batch also applies.


ATS ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0915 Fax. 734/995-0731
Michigan Laboratory ID: 9934
Wisconsin Laboratory ID: 998321720


## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0105221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 11 water samples, received by ATS on January 5, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Gage Trendel — Email: gage_trendel@pall.com — FAX Number:

No. of Pages (including cover pg.): 22

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

Additional Message: Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Katie Strohauer (katstrohauer@tvenj.com), nwoods@tv-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

Date: 1/14/22 — Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0915.





ATS ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0105221**


**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103


ATS ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/14/22**
**SRF / SDG Number(s): 0105221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 11 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/5/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/5/22* | | | | |
| Outfall 001 | 1/4/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| INF-OC-1A | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| INF-OC-2A | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| Bird Pond | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (52-57) | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (62-67) | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (72-77) | 1/5/22 | 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 | • 11 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



### 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

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:

- None

## 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 Duplicates

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

- Reid Pond 10/23

Mark T. DeLong (Quality Assurance Coordinator) January 14, 2022

Philip D. Simon (Laboratory Director) January 14, 2022

0301-0613-ACN_20220121.doc


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY


Method: USEPA 1624
QA/QC Batch Number: GCORG0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0105221-MS | 01/05/2022 | 22:34:04 | 1,4-Dioxane | 123-91-1 | 0.378 | 0.800 | 1.13 | mg/L | Wet | 93.7 | 60 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY


Method: USEPA 1624
QA/QC Batch Number: GCORG0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0105221-MSD | 01/05/2022 | 23:17:37 | 1,4-Dioxane | 123-91-1 | 0.378 | 0.800 | 1.09 | mg/L | Wet | 88.8 | 60 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

CHAIN OF CUSTODY RECORD

Page 1

| | Sample ID | Date | Time | Matrix | Sample Description | Analysis |
|---|---|---|---|---|---|---|
| 1 | O-GAC11 | 01/05 | | | Urgent | 0105221-1 |
| 2 | EB. Conv | 1/5/22 | 7:20 | | | 2 |
| 3 | EB. - CC-1A | | 7:25 | | | 3 |
| 4 | EB - CC-2A | | 7:25 | | | 4 |
| 5 | EB-1 | | 7:30 | | | 5 |
| 6 | DT - GAC | | 7:35 | | | 6 |
| 7 | DT - Tank | | 7:40 | | | 7 |
| 8 | Rock Pond | | 7:45 | | | 8 |
| 9 | MW-14 (52-57') | | 13:15 | | Urgent | 9 |
| 10 | " (62-67') | | 14:50 | | | 10 |
| 11 | " (72-77') | " | 16:25 | | | 11 |
| 12 | AF-30-3200-1446 | 1/4/22 | 14:40 | | Rush | 0105222-1 |
| 13 | AF-40-3200-1446 | " | 15:40 | | | 2 |
| 14 | AF-16-3200-1645 | " | 16:40 | | | 3 |
| 15 | AF-40-3200-0905 | 1/5/22 | 9:05 | | | 4 |
| 16 | Rinse | | | | | 5 |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |

Sample received by Z/4.
45 deg cold + ice
Bail Bond + DW Surrogate in each preservative
All others - no preservative


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY PRECISION SUMMARY


Method: USEPA 1624
QA/QC Batch Number: GCORG0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0105221-8 MS | 01/05/2022 | 22:34:04 | 1,4-Dioxane | 123-91-1 | 1.13 | | mg/L | Wet | | | |
| 0105221-8 MSD | 01/05/2022 | 23:17:37 | 1,4-Dioxane | 123-91-1 | 1.09 | 1.11 | mg/L | Wet | 3.76 | 30 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY BLANK SUMMARY


Method: USEPA 1624
QA/QC Batch Number: GCORG0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1/5/22 | 01/05/2022 | 15:00:12 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.021 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

**Data Transmittal Cover Page**

ATS Ann Arbor Technical Services, Inc.
3019 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734.665.8001 Fax. 734.665.8160
Michigan Laboratory ID: 9958
Wisconsin Laboratory ID: 998310190

Project Name: Pall Corporation
ATS Project Number(s): G001-002
Inorg_SRF_0105221
Client PO Number: 4500589588

Project Description: This data report contains the results of 15 water samples, received by ATS on January 6, 2022 to be analyzed for 1,4-Dioxane.

We certify that the sample matrices for this report have been conducted in accordance with guidelines specified in the referenced standard test method, and any deviations with detailed explanations are identified in a written Deviated Operating Procedure specific to the ATS Laboratories, as required for USEPA, Laboratory data sheets, Standard Operating Procedures specific to the ATS Laboratories, and Chain of Custody documentation are included and specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Greg Trendel — Email: —
No. of Pages (Including cover pg.): 27 — FAX Number: 330-[illegible]@aol.com

From: Sarah Shoemaker (Senior Chemist) / Lab Manager — Email: Sarah.Shoemaker@AnnArborTechnicalServices.com — FAX Number: 734-665-0031

Additional Message: Copy report to: Patterson, Keith (keith.patterson@pall.com); Brook, Jim (jim_brook@aol.com); Klein Donhauser (kleindonhauser@hotmail.com); Copy report to: Patterson, Keith (keith.patterson@pall.com); Brook, Jim (jim_brook@aol.com); Klein Donhauser (kleindonhauser@hotmail.com); heatodd@verizon.net; Peters, Sue Peters (sue.peters@pall.com)

Analysis Needed (emerging_1,4dioxane@pall.com)

Date: 1/14/22 — Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-665-8001.

This message is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

K:\GAC-GEO-ZERO\ATS_Transmittal_Cover_Page_013.xls


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY ACCURACY SUMMARY


Method: USEPA 1624
QA/QC Batch Number: GCORG0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/5/22 | 01/05/2022 | 15:16:28 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00809 | mg/L | Wet | 80.9 | 60 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0106221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

G001-002.21/CN_0106221.doc

ANN ARBOR TECHNICAL SERVICES, INC.

LABORATORY OPERATIONS
CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/14/22**
**SRF / SDG Number(s): 0106221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 15 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/6/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/6/22* | | | | |
| Outfall 001 | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| TW-17 | 1/5/22 | Standard | 1,4-Dioxane | Water |
| TW-14 | 1/5/22 | Standard | 1,4-Dioxane | Water |
| MW-146 (92-97) | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (102-107) | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (112-117) | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (122-127) | 1/5/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (132-137) | 1/5/22 | 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 | 13 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 2 Samples |

G001-002.21/CN_0106221.doc

*Consultants in Chemistry & Environmental Science*
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0005 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 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.

### 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

G001-002.21/CN_0106221.doc

### QA/QC Batch Summary

#### Internal Standards

Internal standards areas and retention times met the acceptance criteria with the following exceptions:
- None

#### 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

G001-002.21/CN_0106221.doc

### Sample Dilutions

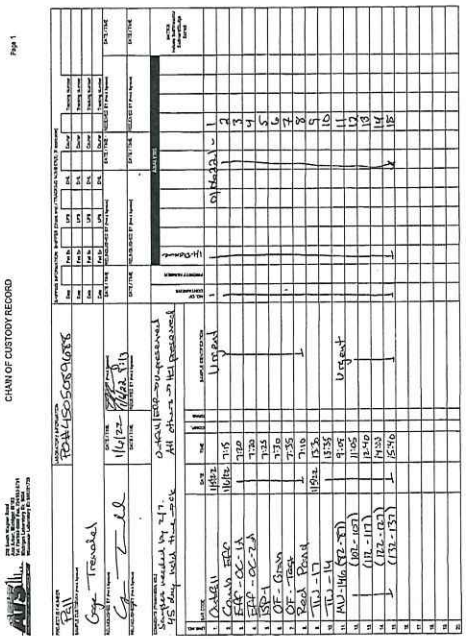
Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

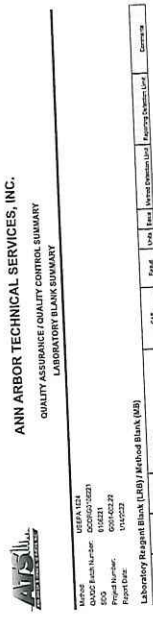
- Red Pond 1/6/22
- TW-17 1/5/22
- TW-14 1/5/22

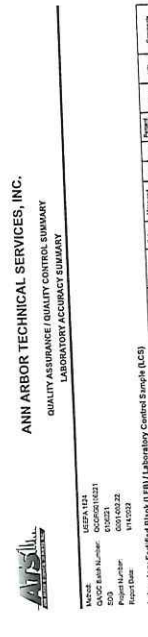
Mark T. DeLong (Quality Assurance Coordinator) / January 14, 2022

Philip B. Simon (Laboratory Director) / January 14, 2022

G001-002.21/CN_0106221.doc



ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCG/G0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Type | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Recovery | Limits | UCL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S1902114A6 | 1/18/2022 | 01:52:00 | 1,4-Dioxane | 123-91-1 | 0.305 | 2.50 | 2.72 | mg/L | 97 | 85 - 115 | 120 |

Comments:
Calculations performed on EPA version carried to two decimal places.
Concentration reported to 2 significant figures.
Percent recovery reported to nearest whole number.
If values entered exceed reporting limit, limit per sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCG/G0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Type | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Recovery | Limits | UCL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S1902114A6D | 1/18/2022 | 02:16:00 | 1,4-Dioxane | 123-91-1 | 0.305 | 2.50 | 2.71 | mg/L | 97 | 85 - 115 | 120 |

Comments:
Calculations performed on EPA version carried to two decimal places.
Concentration reported to 2 significant figures.
Percent recovery reported to nearest whole number.
If values entered exceed reporting limit, limit per sample dilution.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCG/G0105221
SDG: 0105221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Type | Chemical Name | CAS | Result | Mean | Units | RPD | Grand Mean |
|---|---|---|---|---|---|---|---|---|---|
| S1902114A6 | 1/18/2022 | 01:52:00 | 1,4-Dioxane | 123-91-1 | 2.72 | 2.72 | mg/L | 0.0 | 2.72 |
| S1902114A6D | 1/18/2022 | 02:16:00 | 1,4-Dioxane | 123-91-1 | 2.71 | 2.71 | mg/L | 0.0 | 2.72 |

Comments:
Calculations performed on EPA version carried to two decimal places.
Concentration reported to 2 significant figures.
Percent recovery reported to nearest whole number.
If values entered exceed reporting limit, limit per sample dilution.


290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0955 Fax. 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321790


## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0107221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 13 water samples, received by ATS on January 7, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel — **Email:** gage_trendel@pall.com — **FAX Number:**

**No. of Pages (including cover pg.):** 26

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brede, Jim (jim_brede@pall.com); Katie Strohauer (kstrohauer@tveng.com), rwoods@tN-operations.com, Peters, Sue Peters (sue_peters@pall.com); Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/14/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-2995.



K:\G001-002.22\Data_Transmittal_Cover_Page %5.xls

ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0107221**


**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103


ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/6/22**
**SRF / SDG Number(s): 0107221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 13 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/7/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received 1/7/22* | | | | |
| Outfall 001 | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| ISE-OC-1A | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| ISE-OC-2A | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| ISP-1 | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| Rel Pond | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (142-147) | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (152-157) | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (162-167) | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (172-177) | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (182-187) | 1/6/22 | 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 | 13 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

### 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 Laboratories, 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, IIPA 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

#### 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

#### 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

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0107221
SDG: G107221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G107201-4 MS | 01/07/2022 | 20:55:03 | 1,4-Dioxane | 123-91-1 | 0.302 | 0.800 | 1.12 | ng/L | Wet | 82.4 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Page 1 of 3

Sample Dilutions

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

- Red Pond 1/7/22

Mark T. DeLong (Quality Assurance Coordinator) / January 6, 2021

Philip R. Stover (Laboratory Director) / January 6, 2021

G001-002.22 Page 1 of 3

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0107221
SDG: G107221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike Duplicate (MSD)**

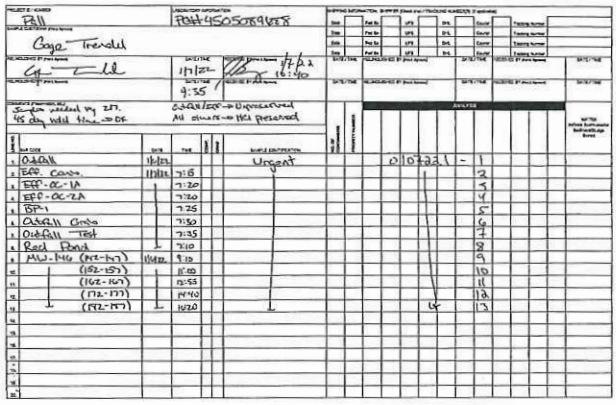
| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G107201-4 MSD | 01/07/2022 | 21:20:38 | 1,4-Dioxane | 123-91-1 | 0.302 | 0.800 | 1.20 | ng/L | Wet | 112 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Page 2 of 3

CHAIN OF CUSTODY RECORD

Page 1




## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

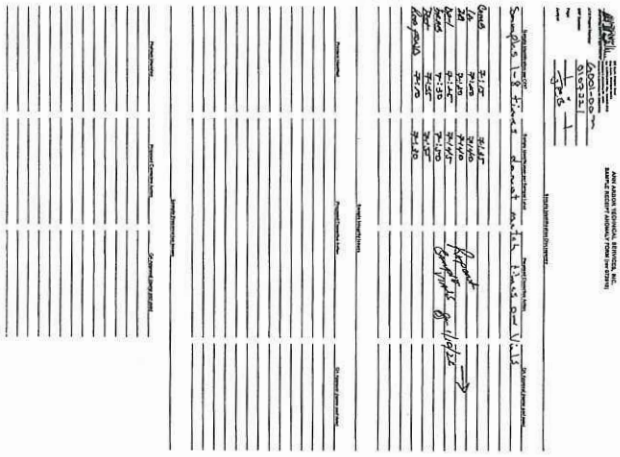
Method: USEPA 1624
QA/QC Batch Number: QCOR/G0107221
SDG: G107221
Project Number: G001-002.22
Report Date: 1/14/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/7/22 | 01/07/2022 | 14:10:53 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00838 | ng/L | Wet | 83.8 | 85 | 115 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Page 3 of 3



## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0107221
SDG: G107221
Project Number: G001-002.22
Report Date: 1/14/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G107201-4 MS | 01/07/2022 | 20:55:03 | 1,4-Dioxane | 123-91-1 | 1.12 | | ng/L | Wet | | | |
| G107201-4 MSD | 01/07/2022 | 21:20:38 | 1,4-Dioxane | 123-91-1 | 1.20 | 1.16 | ng/L | Wet | 6.69 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0107221
SDG: G107221
Project Number: G001-002.22
Report Date: 1/14/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1/7/22 | 01/07/2022 | 13:25:37 | 1,4-Dioxane | 123-91-1 | | ng/L | Wet | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Comp-Eff | Analysis Date | 01/04/2022 21:24:31 |
| Laboratory Sample ID | 0104221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 7:50 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.039 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | EffX2-5A | Analysis Date | 01/04/2022 22:09:53 |
| Laboratory Sample ID | 0104221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 7:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.035 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | EffX2-2A | Analysis Date | 01/04/2022 22:51:47 |
| Laboratory Sample ID | 0104221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 7:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | SP-1 | Analysis Date | 01/04/2022 23:30:22 |
| Laboratory Sample ID | 0104221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 8:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.008 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/03/2022 00:19:56 |
| Laboratory Sample ID | 0104221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 8:05 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.008 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/01/2022 01:02:31 |
| Laboratory Sample ID | 0104221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 8:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.008 | 0.001 | | |

Comments

All methods reference US EPA methods unless otherwise noted.
Project specific reporting limit (MDL) based upon lowest calibration standard.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Wash Water LCW-W | Analysis Date | 01/04/2022 12:30:01 |
| Laboratory Sample ID | 0104221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 12/30/2021 11:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
U - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Wash Water LCW-B | Analysis Date | 01/05/2022 05:05:35 |
| Laboratory Sample ID | 0104221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 12/30/2021 10:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.01 | | UM |

Comments

All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | Comb GF | Analysis Date | 01/05/2022 17:28:04 |
| Laboratory Sample ID | 0105221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1674 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | LB-OC-1A | Analysis Date | 01/05/2022 16:11:04 |
| Laboratory Sample ID | 0105221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | EP-DC-3A | Analysis Date | 01/05/2022 16:55:44 |
| Laboratory Sample ID | 0105221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | SP-1 | Analysis Date | 01/05/2022 19:39:31 |
| Laboratory Sample ID | 0105221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/05/2022 20:23:16 |
| Laboratory Sample ID | 0105221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/05/2022 21:05:50 |
| Laboratory Sample ID | 0105221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | MW-14S (S2-S7) | Analysis Date | 01/05/2022 02:11:37 |
| Laboratory Sample ID | 0105221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 13:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | MW-14D (S2-S7) | Analysis Date | 01/05/2022 02:54:34 |
| Laboratory Sample ID | 0105221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 14:50 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | MW-14S (72-77) | Analysis Date | 01/06/2022 03:38:32 |
| Laboratory Sample ID | 0105221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 16:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | - | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | Comb-DF | Analysis Date | 01/06/2022 20:29:11 |
| Laboratory Sample ID | 0105221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/06/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/06/2022 |
| Client Sample ID | DF-OC-1A | Analysis Date | 01/06/2022 21:11:43 |
| Laboratory Sample ID | 0105221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/06/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/06/2022 |
| Client Sample ID | EP-OC-2A | Analysis Date | 01/06/2022 21:55:13 |
| Laboratory Sample ID | 0105221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/06/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.007 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/06/2022 |
| Client Sample ID | RP-1 | Analysis Date | 01/06/2022 22:38:50 |
| Laboratory Sample ID | 0105221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/06/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.007 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/06/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/06/2022 23:22:20 |
| Laboratory Sample ID | 0105221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/06/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/06/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/07/2022 00:05:52 |
| Laboratory Sample ID | 0105221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/06/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.007 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/06/2022 |
| Client Sample ID | MW-14S (82-87) | Analysis Date | 01/07/2022 06:37:48 |
| Laboratory Sample ID | 0105221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 5:05 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | MW-14S (122-167) | Analysis Date | 01/07/2022 07:21:33 |
| Laboratory Sample ID | 0106221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 11:05 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | MW-14S (112-117) | Analysis Date | 01/07/2022 08:55:18 |
| Laboratory Sample ID | 0106221-13 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 12:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/05/2022 |
| Client Sample ID | MW-14S (122-127) | Analysis Date | 01/07/2022 08:49:01 |
| Laboratory Sample ID | 0106221-14 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 14:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | MW-14S (133-137) | Analysis Date | 01/07/2022 09:32:45 |
| Laboratory Sample ID | 0106221-15 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 15:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | Comb Eff | Analysis Date | 01/07/2022 15:48:47 |
| Laboratory Sample ID | 0107221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/07/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.036 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | ER-OC-1A | Analysis Date | 01/07/2022 16:32:41 |
| Laboratory Sample ID | 0107221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/07/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | ER-OC-2A | Analysis Date | 01/07/2022 17:16:26 |
| Laboratory Sample ID | 0107221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/07/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | DP-1 | Analysis Date | 01/07/2022 18:00:20 |
| Laboratory Sample ID | 0107221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/07/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/07/2022 18:44:11 |
| Laboratory Sample ID | 0107221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/6/12022 7:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/07/2022 19:27:58 |
| Laboratory Sample ID | 0107221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/07/2022 7:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | MW-146 (142-147) | Analysis Date | 01/08/2022 01:59:42 |
| Laboratory Sample ID | 0107221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/06/2022 9:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.002 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | MW-146 (152-157) | Analysis Date | 01/08/2022 02:43:05 |
| Laboratory Sample ID | 0107221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/06/2022 11:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.002 | 0.001 | | UM |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | MW-146 (162-167) | Analysis Date | 01/08/2022 03:36:39 |
| Laboratory Sample ID | 0107221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/06/2022 12:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.002 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | MW-146 (172-177) | Analysis Date | 01/08/2022 04:10:11 |
| Laboratory Sample ID | 0107221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/06/2022 14:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.003 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | MW-146 (182-187) | Analysis Date | 01/08/2022 04:53:44 |
| Laboratory Sample ID | 0107221-13 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/06/2022 16:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.003 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/04/2022 19:57:12 |
| Laboratory Sample ID | 0104221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/02/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORS0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.056 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/04/2022 20:40:52 |
| Laboratory Sample ID | 0104221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/03/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0104221 | Preparation Date | 01/04/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/05/2022 01:46:53 |
| Laboratory Sample ID | 0104221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0104221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.36 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/05/2022 16:44:11 |
| Laboratory Sample ID | 0105221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/04/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0105221 | Preparation Date | 01/05/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/05/2022 21:59:39 |
| Laboratory Sample ID | 0105221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0105221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.36 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | TW-17 | Analysis Date | 01/07/2022 11:00:14 |
| Laboratory Sample ID | 0106221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.030 |
| Sample Date | 01/05/2022 13:20 | Final Volume (mL) | 5.030 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.007 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/07/2022 00:49:24 |
| Laboratory Sample ID | 0106221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.500 |
| Sample Date | 01/06/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.39 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | TW-14 | Analysis Date | 01/07/2022 11:44:01 |
| Laboratory Sample ID | 0106221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 13:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.074 | 0.005 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0106221 | Preparation Date | 01/06/2022 |
| Client Sample ID | TW-14 | Analysis Date | 01/07/2022 11:44:01 |
| Laboratory Sample ID | 0106221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 13:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 5 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0106221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.13 | 0.005 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/07/2022 15:04:57 |
| Laboratory Sample ID | 0107221-1 | Instrument | 7100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/06/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | ng/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.059 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at method pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0895
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0107221 | Preparation Date | 01/07/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/07/2022 20:11:32 |
| Laboratory Sample ID | 0107221-6 | Instrument | 7100V |
| Matrix | Water | Subsample (mL) | 5.0000 |
| Sample Date | 01/07/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0107221 | Units | ng/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.34 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0895
Fax: 734-995-3731

ATS
ANN ARBOR TECHNICAL SERVICES, INC.
290 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/995-0995 Fax: 734/995-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998321790

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0110221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 10 water samples, received by ATS on January 10, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel **Email:** gage_trendel@pall.com
**FAX Number:**

**No. of Pages (including cover pg.):** 22

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Katie Strohauer (kstrohauer@lveng.com), fwoods@fv-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/21/22 **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





ATS
ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0110221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ATS
ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/21/22**
**SRF / SDG Number(s): 0110221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 10 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/10/22, and associated matrix-specific QA/QC.

**Samples**

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 1/10/22* | | | | |
| Outfall 001 | 1/6/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| RP-1 | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Comb | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| MW-146 (102-107) | 1/7/22 | Urgent | 1,4-Dioxane | Water |
| TW-23 | 12/20/21 | 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 | 10 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



*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 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 (IS, 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 on 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 ng/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:

- None



ATS

#### 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

#### 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:

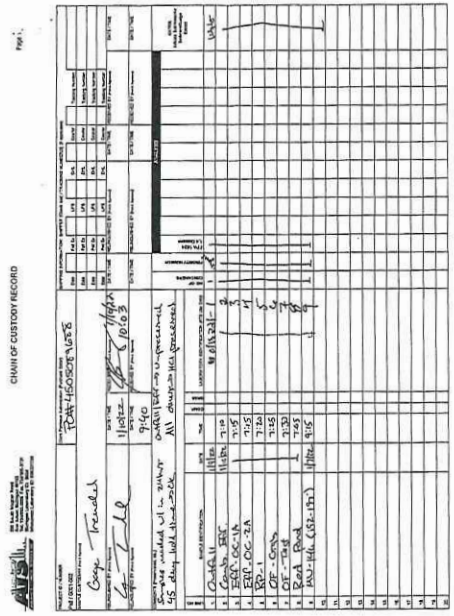
- Red Pond 1/10/22
- TW-23 12/20/21

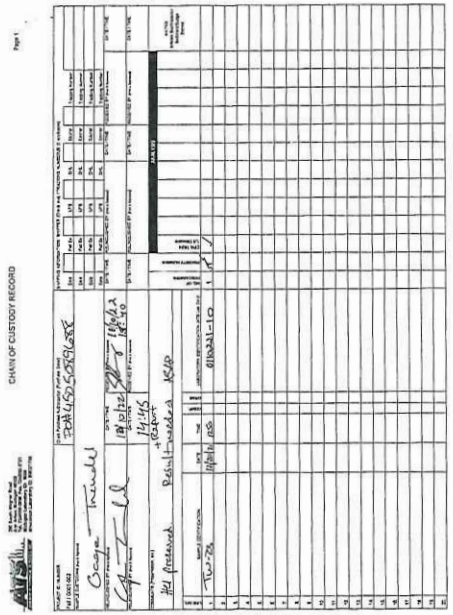
Mark T. DeLong (Quality Assurance Coordinator) / January 21, 2022

Philip H. Simon (Laboratory Director) / January 21, 2022



ATS




ANN ARBOR TECHNICAL SERVICES, INC.
QUALITY ASSURANCE / QUALITY CONTROL SUMMARY
LABORATORY BLANK SUMMARY

Method: USEPA 1624
QC/CC Batch Number: QCCRG0110221
SDG #: G001-002.22
Project Number: 0110221
Report Date: 1/21/22

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Dilution Factor | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| MB-0110221 | 1/10/2022 | 07:20 | 1,4-Dioxane | 123-91-1 | ND | ng/L | 1 | 0.021 | 0.083 | |

Comments:
Reporting Limit (RL) = Lowest calibration standard analyzed.
Detections between the MDL and RL are estimated.
MDL = Method Detection Limit
ND = Not detected at or above the MDL

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRO0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB 1 V 20 | 01/19/2022 | 0918:24 | 1,4-Dioxane | 123-91-1 | | 10.00 | 12.00 | ug/L | wet | 83.5 | 65 | 115 | |

Comments:
Analysis performed on Agilent 7890B/5977A GC/MS system.
Calibration performed on 01/19/2022.
All results reported on a wet weight basis unless otherwise noted.
Results reported to MDL and qualified as appropriate.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRO0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0111221-4 MS | 01/19/2022 | 1128:37 | 1,4-Dioxane | 123-91-1 | 0.301 | 0.800 | 1.12 | ug/L | wet | 85.3 | 65 | 115 | |

Comments:
Analysis performed on Agilent 7890B/5977A GC/MS system.
Calibration performed on 01/19/2022.
All results reported on a wet weight basis unless otherwise noted.
Results reported to MDL and qualified as appropriate.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRO0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0111221-4 MSD | 01/19/2022 | 1158:54 | 1,4-Dioxane | 123-91-1 | 0.301 | 0.800 | 1.29 | ug/L | wet | 98.3 | 65 | 115 | |

Comments:
Analysis performed on Agilent 7890B/5977A GC/MS system.
Calibration performed on 01/19/2022.
All results reported on a wet weight basis unless otherwise noted.
Results reported to MDL and qualified as appropriate.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRO0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | RPD | Sample Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0111221-4 MS | 01/19/2022 | 1128:37 | 1,4-Dioxane | 123-91-1 | 1.12 | ug/L | wet | 2.42 | 30 | |
| 0111221-4 MSD | 01/19/2022 | 1158:54 | 1,4-Dioxane | 123-91-1 | 1.29 | ug/L | wet | | | |

Comments:
Analysis performed on Agilent 7890B/5977A GC/MS system.
Calibration performed on 01/19/2022.
All results reported on a wet weight basis unless otherwise noted.

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0900 Fax. 734/995-3731
Michigan Laboratory ID: 9904
Wisconsin Laboratory ID: 998251720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0111221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 8 water samples, received by ATS on January 11, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Gage Trendel — Email: gage_trendel@pall.com — FAX Number:

No. of Pages (including cover pg.): 19

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

Additional Message: Copy report to: Patterson, Keith (keith_patterson@pall.com), Brodo, Jim (jim_brodo@pall.com)
Katie Strohauer (kstrohauer@fveng.com), rwoods@fiv-operations.com, Peters, Sue Peters (sue_peters@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

Date: 1/21/22 — Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.





ATS ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0111221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ATS ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/21/22**
**SRF / SDG Number(s): 0111221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 8 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/11/22, and associated matrix-specific QA/QC:

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 1/11/22* | | | | |
| Outfall 001 | 1/10/22 | Urgent | 1,4-Dioxane | Water |
| Comb Eff | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-1A | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| Eff-OC-2A | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/11/22 | 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 | • 8 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



*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 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 (IS, 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 ug/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:

- None

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCGR/G0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0111221-8 MS | 01/11/2022 | 16:23:28 | 1,4-Dioxane | 123-91-1 | 0.432 | 0.800 | 1.21 | ng/L | Wet | 97.3 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## 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 Duplicates

A matrix duplicate (MD) 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:

- Batch Blank (1111221)

Mark T. DeLong (Quality Assurance Coordinator) /January 21, 2022

Philip R. Simon (Laboratory Director) /January 21, 2022

G001-002.22\QCR_0111221.doc


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCGR/G0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022


**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0111221-9 MSD | 01/11/2022 | 20:07:10 | 1,4-Dioxane | 123-91-1 | 0.432 | 0.800 | 1.15 | ng/L | Wet | 85.1 | 80 | 120 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.


## CHAIN OF CUSTODY RECORD


380 South Wagner Road
Ann Arbor, Michigan 48103
Michigan Laboratory ID: 9903116
Michigan Laboratory ID: 9903117


Page 1

| PROJECT ID / NUMBER | Date Purchase Authorization (Purchase Order) | SHIPPING INFORMATION: Shipment (check one) / TRACKING NUMBER (if applicable) |
|---|---|---|
| Pull / G001-002 | PO# 4505088688 | Date: Ship By: UPS: DHL: Courier: Tracking Number: |

| RELINQUISHED BY (Print and Sign) | DATE / TIME | RECEIVED BY (Print and Sign) | DATE / TIME |
|---|---|---|---|
| Gage Trendel | 1/11/22 9:02 | | |
| | 1:50 | | |

Comments / Special Instructions: Sample collected by GT. 48 day hold time - ICE

0-360 ppm - preserved
All others - no pres preserved

| Sample # | Sample Description | Date | Time | Grab | Composite | Laboratory Identification (ATS Lab Only) | Total # of Containers | Volume | Preservative | Filtered |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | C-TRIP 11 | 1/10/22 | | | | 0111221- 1 | 1 | 1qt | | |
| 2 | Comp. EBF | 1/11/22 | 7:40 | | | 2 | | | | |
| 3 | EBF-OC-1A | | 7:45 | | | 3 | | | | |
| 4 | EBF-OC-2-A | | 7:45 | | | 4 | | | | |
| 5 | BP-1 | | 7:55 | | | 5 | | | | |
| 6 | OF - Grab | | 7:55 | | | 6 | | | | |
| 7 | OF - Trip | | 7:00 | | | 7 | | | | |
| 8 | Rock Pond | | 7:35 | | | 8 | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 11 | | | | | | | | | | |
| 12 | | | | | | | | | | |
| 13 | | | | | | | | | | |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | | | | | | | | | | |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCGR/G0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022


**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0111221-8 MS | 01/11/2022 | 16:23:28 | 1,4-Dioxane | 123-91-1 | 1.21 | | ng/L | Wet | | | |
| 0111221-9 MSD | 01/11/2022 | 20:07:10 | 1,4-Dioxane | 123-91-1 | 1.15 | 1.18 | ng/L | Wet | 4.87 | 20 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCGR/G0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022


**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 111122 | 01/11/2022 | 08:42:14 | 1,4-Dioxane | 123-91-1 | | ng/L | Wet | 0.651 | | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.



380 South Wagner Road
Ann Arbor, Michigan 48103
Michigan Laboratory ID: 9903116
Michigan Laboratory ID: 9903117


## Data Transmittal Cover Page

ATS Project Name: Pall Corporation
ATS Report Number(s): G001-002
Client PO Number: 4505088688

Project Description: This data report contains the results of 9 water samples, received by ATS on January 12, 2022 to be analyzed for 1,4-Dioxane.

We certify that the sample analyses for this report have been conducted in accordance with the laboratory's in-house approved standard operating procedures (SOP) for 1,4-Dioxane by EPA Method 1624. Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, QC/QA, and CoC(s) are included in this report. All requirements of the NELAC standards have been met, except as noted on the data report. All results in samples, preservation and holding times requirements have been met.

Recipient: Mr. Gage Trendel — Email: —
FAX Number: — 2029_trendel@pall.com

No. of Pages (including cover pg.): 20

From: Sarah Stabenfeldt, Senior Chemist / Lab Manager — Email: Sarah.Stabenfeldt@AnnArborTechnicalServices.com
FAX Number: 734-480-3131

Additional Message: Copy report to: Patterson, Keith (keith_patterson@pall.com); Brook, Jim (jim_brook@pall.com); Kolb, Christopher (kolbchristopher@hrcg.com); hesketh@hydrogeniontech.com; Peters, Sue Peters (sue_peters@pall.com); Amanda Sorbello (asorbello@pall.com)

Date: 1/21/22 — Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-480-0093.

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient or the agent responsible for delivering this message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

X:\G001-002.22\Data_Transmittal_Cover_Page 20 Ltr.xls


## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCGR/G0111221
SDG: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022


**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 111122 | 01/11/2022 | 08:43:00 | 1,4-Dioxane | 123-91-1 | | 0.5100 | 0.60339 | ng/L | Wet | 89.8 | 65 | 115 | |


Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

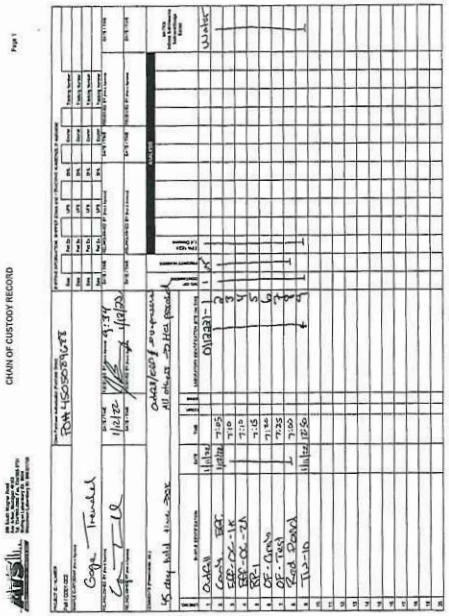
# ORGANIC ANALYSIS

## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0112221**


**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103



CHAIN OF CUSTODY RECORD

Page 1

# LABORATORY OPERATIONS
# CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/21/22**
**SRF / SDG Number(s): 0112221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 9 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/12/22, and associated matrix-specific QA/QC

Samples

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Received: 1/12/22* | | | | |
| Outfall 001 | 1/11/22 | Urgent | 1,4-Dioxane | Water |
| Comb Pit | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| DE-OC-1A | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| DE-OC-2A | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| SP-1 | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Comb | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| TW-10 | 1/11/22 | 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 | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 1 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




*Consultants in Chemistry & Environmental Science*
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0200 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 SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

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

### Data Deliverables

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

### Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed 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 in 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:

- None



#### 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:

| Lab Sample ID | Constituent | Percent Recovery | Acceptance Limits |
|---|---|---|---|
| 0112221-6 MS | 1,4-Dioxane | 121 | 80-120% |

#### 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 1/12/22
- TW-10 1/11/22

Mark T. DeLong (Quality Assurance Coordinator) / January 21, 2022

Philip B. Simon (Laboratory Director) / January 21, 2022




ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY BLANK SUMMARY

Method: USEPA 1624
GC/GC Batch Number: GCGC0111221
GC/MS: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

Laboratory Reagent Blank (LRB) / Method Blank (MB)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Dilution | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRA1113122 | 01/13/2022 | 07:18 | 1,4-Dioxane | 123911 | ND | ug/L | 1 | 0.05 | 1 | |

Comments:
Qualifiers: B-Detected in QC blank; D-Diluted out; E-Exceeds calibration range; H-Analyzed outside of recommended holding time; J-Estimated value; M-Matrix effect; N-Tentatively identified compound; P-%Difference between two GC columns exceeds 40%; U-Analyzed for but not detected; X-Other specific qualifiers as defined in case narrative.


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
GC/GC Batch Number: GCGC0111221
GC/MS: 0111221
Project Number: G001-002.22
Report Date: 1/21/2022

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB1113122 | 01/13/2022 | 07:31:20 | 1,4-Dioxane | 123911 | | 0.1562 | 0.1511 | ug/L | WW | 112 | 85 | 115 | |

Comments:
Qualifiers: B-Detected in QC blank; D-Diluted out; E-Exceeds calibration range; H-Analyzed outside of recommended holding time; J-Estimated value; M-Matrix effect; N-Tentatively identified compound; P-%Difference between two GC columns exceeds 40%; U-Analyzed for but not detected; X-Other specific qualifiers as defined in case narrative.


ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
GC/GC Batch Number: GCGC0111221
SDG: 0112221
Project Number: G001-002.22
Report Date: 1/21/2022

Matrix Spike (MS)

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0112221-6 MS | 01/13/2022 | 17:21:20 | 1,4-Dioxane | 123911 | 0.427 | 0.532 | 1.44 | mg/L | WW | 121 | 80 | 120 | |

Comments:
Qualifiers: B-Detected in QC blank; D-Diluted out; E-Exceeds calibration range; H-Analyzed outside of recommended holding time; J-Estimated value; M-Matrix effect; N-Tentatively identified compound; P-%Difference between two GC columns exceeds 40%; U-Analyzed for but not detected; X-Other specific qualifiers as defined in case narrative.

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRG0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Dilution Factor | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Percent Recovery | LCL | UCL | Control Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102214-MSD | 01/22/22 | 10:58:33 | 1,4-Dioxane | 123-91-1 | 0.427 | 5.00 | 5.34 | mg/L | 111 | 80 | 120 | |

Surrogate
Surrogate Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Blank Spike Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Laboratory Duplicate Relative Percent Difference (RPD) - Control Limit (RPD)
Matrix Spike Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Matrix Spike Duplicate Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Matrix Spike Duplicate Relative Percent Difference (RPD) - Control Limit (RPD)

ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRG0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Dilution Factor | CAS | Result | Mean | Units | Relative Standard Deviation | RPD | Control Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| 1102214-MS | 01/22/22 | 10:28:33 | 1,4-Dioxane | 123-91-1 | 5.14 | 5.24 | mg/L | 2.8 | 7.14 | 30 |
| 1102214-MSD | 01/22/22 | 10:58:33 | 1,4-Dioxane | 123-91-1 | 5.34 | | | | | |

Surrogate
Surrogate Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Blank Spike Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Laboratory Duplicate Relative Percent Difference (RPD) - Control Limit (RPD)
Matrix Spike Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Matrix Spike Duplicate Recovery (LCL - UCL) - Control Limit (Recovery Limit)
Matrix Spike Duplicate Relative Percent Difference (RPD) - Control Limit (RPD)

ATS ANN ARBOR TECHNICAL SERVICES, INC.
595 South Wagner Road
Ann Arbor, Michigan 48103
Tel: 734/665-0995 Fax: 734/665-3731
Michigan Laboratory ID: 9004
Wisconsin Laboratory ID: 998397790

## Data Transmittal Cover Page

**Project Name:** Pall Corporation
**ATS Project Number:** G001-002
**ATS Report Number(s):** Inorg_SRF_0113221
**Client PO Number:** 4505089688

**Project Description:** This data report contains the results of 8 water samples, received by ATS on January 13, 2022 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 Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gene Trendel — **Email:** gene_trendel@pall.com
**FAX Number:**

**No. of Pages (including cover pg.):** 10

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

**Additional Message:** Copy report to: Patterson, Keith (keith_patterson@pall.com), Brode, Jim (jim_brode@pall.com)
Kelle Strohauer (kstrohauer@fvtong.com), rwoods@fv-operations.com, Peters, Sue Peters (sue_petersu@pall.com)
Amanda Isabella (amanda_isabella@pall.com)

**Date:** 1/21/22 — **Signed:**

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0995.



X:\G001-002.22\Data_Transmittal_Cover_Page SLS.xls

ATS ANN ARBOR TECHNICAL SERVICES, INC.

# ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

**ATS Project Number: G001-002.22**

**ATS SDG: 0113221**

**Prepared By:**
Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, MI 48103

ATS ANN ARBOR TECHNICAL SERVICES, INC.

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/21/22**
**SRF / SDG Number(s): 0113221**
**Client PO Number: 4505089688**

### Case Narrative Summary

This case narrative applies to the following 8 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/13/22, and associated matrix-specific QA/QC:

**Samples**

| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| *Revised 1/13/22* | | | | |
| Outfall 001 | 1/12/22 | Urgent | 1,4-Dioxane | Water |
| Red Pond | 1/13/22 | Urgent | 1,4-Dioxane | Water |
| Creek IDF | 1/13/22 | Urgent | 1,4-Dioxane | Water |
| IDF-OC-1A | 1/13/22 | Urgent | 1,4-Dioxane | Water |
| IDF-OC-2A | 1/13/22 | Urgent | 1,4-Dioxane | Water |
| BP-1 | 1/13/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Grab | 1/13/22 | Urgent | 1,4-Dioxane | Water |
| Outfall Test | 1/13/22 | 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 | 8 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



### 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 conforms 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 (IS, 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 ng/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:

- None



#### 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

#### 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 1/13/22

Mark T. DeLong (Quality Assurance Coordinator) / January 21, 2022

Philip B. Simon (Laboratory Director) / January 21, 2022



CHAIN OF CUSTODY RECORD

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mod | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0113221-2 MS | 01/19/2022 | 22:19:23 | 1,4-Dioxane | 123-91-1 | 1.58 | | mg/L | Wet | | | |
| 0113221-2 MSD | 01/19/2022 | 23:01:58 | 1,4-Dioxane | 123-91-1 | 1.59 | 1.67 | mg/L | Wet | 4.00 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1/13/22 | 01/13/2022 | 13:44:17 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/13/22 | 01/13/2022 | 14:47:05 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00965 | mg/L | Wet | 96.5 | 65 | 115 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0113221-2 MS | 01/19/2022 | 22:19:23 | 1,4-Dioxane | 123-91-1 | 0.405 | 0.800 | 1.05 | mg/L | Wet | 80.5 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCOR/G0113221
SDG: 0113221
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0113221-2 MSD | 01/19/2022 | 23:01:58 | 1,4-Dioxane | 123-91-1 | 0.405 | 0.800 | 1.08 | mg/L | Wet | 85.8 | 80 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): Inorg_SRF_01114221A/B
Client PO Number: 4505089688

Project Description: This data report contains the results of 27 water samples, received by ATS on January 14, 2022 to be analyzed for 1,4-Dioxane.

We certify that the sample analyses for this report have been conducted in accordance with guidelines presented in the referenced submitted test method, and are consistent with standard procedures described in a written Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, Standard Operating Procedures, and Quality Assurance/Quality Control data are available upon request. Data qualifiers (if any) are specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Mr. Gene Trentini Email: [redacted]
FAX Number: [redacted]

No. of Pages (including cover pg.): 49

From: Sarah Stableford Email: [redacted]
Senior Chemist / Lab Manager FAX Number: 734-995-2731

Additional Message: Copy report to: Patterson, Keith (keith_patterson@pall.com); Brodie, Jim (jim_brodie@pall.com); Anita Strahauer (anitastrauer@strang.com); nwoolsey@tn-operations.com; Peters, Sue Peters (sue_peters@pall.com); Amanda Isabell (amandi0_isabell@pall.com)

Date: 1/27/22 Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-995-0600.

This material is transmitted only for the use of the individual or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient of the report responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

K:\G001-002.22\Data_Transmittal_Cover_Page.doc

## ORGANIC ANALYSIS
## 1,4-Dioxane by GC/MS
## USEPA 1624

## ATS Project Number: G001-002.22
## ATS SDG: 01114221A/B

**Prepared By:**
Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, MI 48103

## LABORATORY OPERATIONS
## CASE NARRATIVE

**ATS Project Number: G001-002**
**Report Date: 1/21/22**
**SRF / SDG Number(s): 01114221**
**Client PO Number: 4505089688**

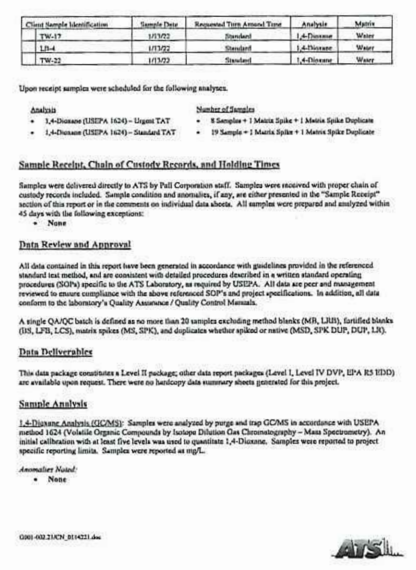
**Case Narrative Summary**

This case narrative applies to the following 27 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 1/14/22, and associated matrix-specific QA/QC:

Samples:

| Client Sample Identification | Sample Date | Sample Time | Analyte | Matrix |
|---|---|---|---|---|
| Aerated_070422 | 01/13/22 | Unspecified | 1,4-Dioxane | Water |
| Blank Filter | 01/13/22 | Unspecified | 1,4-Dioxane | Water |
| Blank Resin | 01/13/22 | Unspecified | 1,4-Dioxane | Water |
| Cook FF | 01/13/22 | Unspecified | 1,4-Dioxane | Water |
| ITRGC1A | 01/13/22 | Unspecified | 1,4-Dioxane | Water |
| ITRGC2A | 01/14/22 | Unspecified | 1,4-Dioxane | Water |
| Influ | 01/14/22 | Unspecified | 1,4-Dioxane | Water |
| Outfall Dark | 01/14/22 | Unspecified | 1,4-Dioxane | Water |
| Outfall Light | 01/14/22 | Unspecified | 1,4-Dioxane | Water |
| MRE-07N | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| MRE-27N | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| MRE-28M | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| MRE-27M | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| 2870 Effluent M | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-2N | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-2M | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-1 | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-1M | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-3 | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-3M | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-4 | 01/13/22 | Stableford | 1,4-Dioxane | Water |
| TW-4M | 01/13/22 | Stableford | 1,4-Dioxane | Water |

Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0600 Fax 734/995-2731



| Client Sample Identification | Sample Date | Requested Turn Around Time | Analysis | Matrix |
|---|---|---|---|---|
| TW-17 | 1/13/22 | Standard | 1,4-Dioxane | Water |
| LB-4 | 1/13/22 | Standard | 1,4-Dioxane | Water |
| TW-22 | 1/13/22 | 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 | 8 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate |
| 1,4-Dioxane (USEPA 1624) – Standard TAT | 19 Sample + 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

## 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

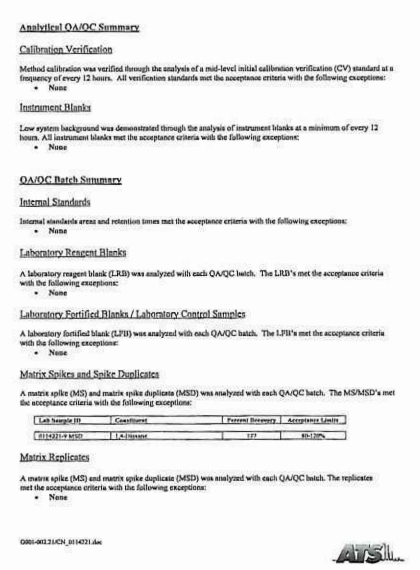
1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported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

*Anomalies Noted:*

- None

G001-002.21/CN_0114221.doc

---



## 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

### 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:

| Lab Sample ID | Constituent | Percent Recovery | Acceptance Limits |
|---|---|---|---|
| 0114221-9 MSD | 1,4-Dioxane | 127 | 80-120% |

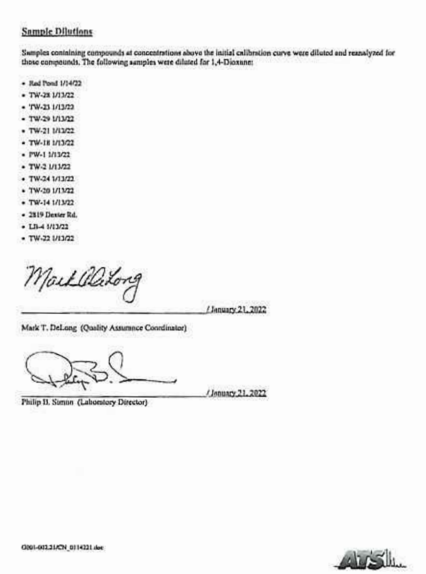
### Matrix Replicates

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

G001-002.21/CN_0114221.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:

- Red Pond 1/14/22
- TW-28 1/13/22
- TW-23 1/13/22
- TW-29 1/13/22
- TW-21 1/13/22
- TW-18 1/13/22
- PW-1 1/13/22
- TW-2 1/13/22
- TW-24 1/13/22
- TW-20 1/13/22
- TW-14 1/13/22
- 2819 Dexter Rd.
- LB-4 1/13/22
- TW-22 1/13/22

Mark DeLong / January 21, 2022

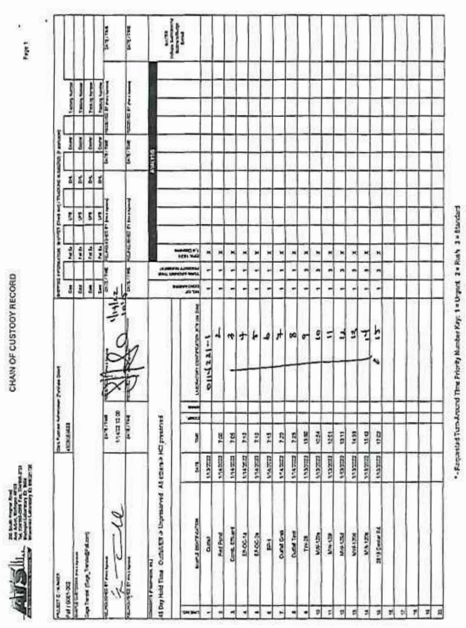
Mark T. DeLong (Quality Assurance Coordinator)

/ January 21, 2022

Philip B. Simon (Laboratory Director)

G001-002.21/CN_0114221.doc

---



### CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Pall / G001-002

Sample Custodian: Gage Trendel (Gage_Trendel@Pall.com)

Relinquished by: 1/14/22 12:00

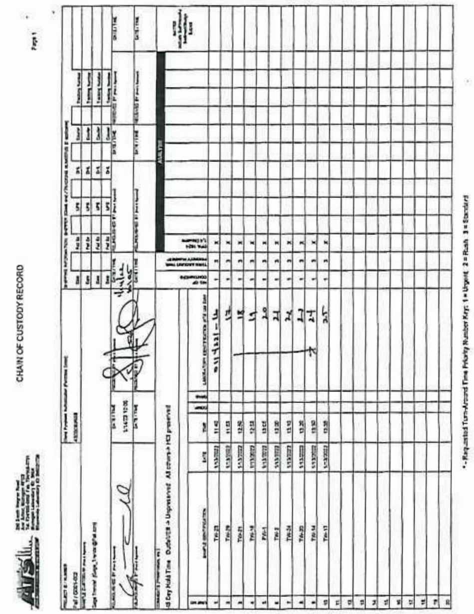
1/14/22 10:15

Comments: 45 Day Hold Time Outfall/EB -> Unpreserved All others-> HCl preserved

| # | Sample Identification | Date | Time | Laboratory Identification | No. of Containers | Turn-Around Time Priority Number* | EPA 1624 1,4-Dioxane |
|---|---|---|---|---|---|---|---|
| 1 | Outfall | 1/13/2022 | | 0114221-1 | 1 | 1 | x |
| 2 | Red Pond | 1/14/2022 | 7:00 | 2 | 1 | 1 | x |
| 3 | Comb. Effluent | 1/14/2022 | 7:05 | 3 | 1 | 1 | x |
| 4 | EF-OC-1a | 1/14/2022 | 7:10 | 4 | 1 | 1 | x |
| 5 | EF-OC-2a | 1/14/2022 | 7:10 | 5 | 1 | 1 | x |
| 6 | EP-1 | 1/14/2022 | 7:15 | 6 | 1 | 1 | x |
| 7 | Outfall Grab | 1/14/2022 | 7:20 | 7 | 1 | 1 | x |
| 8 | Outfall Tank | 1/14/2022 | 7:25 | 8 | 1 | 1 | x |
| 9 | TW-28 | 1/13/2022 | 13:50 | 9 | 1 | 3 | x |
| 10 | MW-120s | 1/13/2022 | 12:54 | 10 | 1 | 3 | x |
| 11 | MW-120i | 1/13/2022 | 12:01 | 11 | 1 | 3 | x |
| 12 | MW-120d | 1/13/2022 | 13:11 | 12 | 1 | 3 | x |
| 13 | MW-120[illegible] | 1/13/2022 | 14:33 | 13 | 1 | 3 | x |
| 14 | MW-120[illegible] | 1/13/2022 | 13:43 | 14 | 1 | 3 | x |
| 15 | 2819 Dexter Rd | 1/13/2022 | 17:03 | 15 | 1 | 3 | x |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

---



### CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Pall / G001-002

Sample Custodian: Gage Trendel (Gage_Trendel@Pall.com)

Relinquished by: 1/14/22 12:00

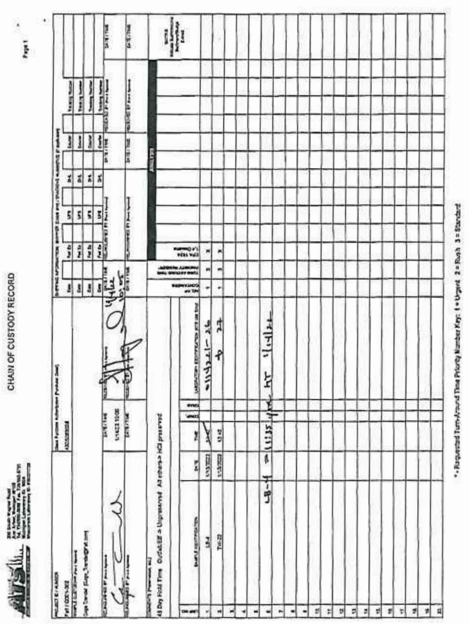
1/14/22 12:05

Comments: 45 Day Hold Time Outfall/EB -> Unpreserved All others-> HCl preserved

| # | Sample Identification | Date | Time | Laboratory Identification | No. of Containers | Turn-Around Time Priority Number* | EPA 1624 1,4-Dioxane |
|---|---|---|---|---|---|---|---|
| 1 | TW-23 | 1/13/2022 | 11:42 | 0114221-16 | 1 | 3 | x |
| 2 | TW-29 | 1/13/2022 | 11:53 | 17 | 1 | 3 | x |
| 3 | TW-21 | 1/13/2022 | 12:50 | 18 | 1 | 3 | x |
| 4 | TW-18 | 1/13/2022 | 12:53 | 19 | 1 | 3 | x |
| 5 | PW-1 | 1/13/2022 | 13:05 | 20 | 1 | 3 | x |
| 6 | TW-2 | 1/13/2022 | 13:00 | 21 | 1 | 3 | x |
| 7 | TW-24 | 1/13/2022 | 13:10 | 22 | 1 | 3 | x |
| 8 | TW-20 | 1/13/2022 | 13:20 | 23 | 1 | 3 | x |
| 9 | TW-14 | 1/13/2022 | 13:30 | 24 | 1 | 3 | x |
| 10 | TW-17 | 1/13/2022 | 13:35 | 25 | 1 | 3 | x |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

---



### CHAIN OF CUSTODY RECORD

Page 1

Project ID / Number: Pall / G001-002

Sample Custodian: Gage Trendel (Gage_Trendel@Pall.com)

Relinquished by: 1/14/22 12:00

1/14/22 12:05

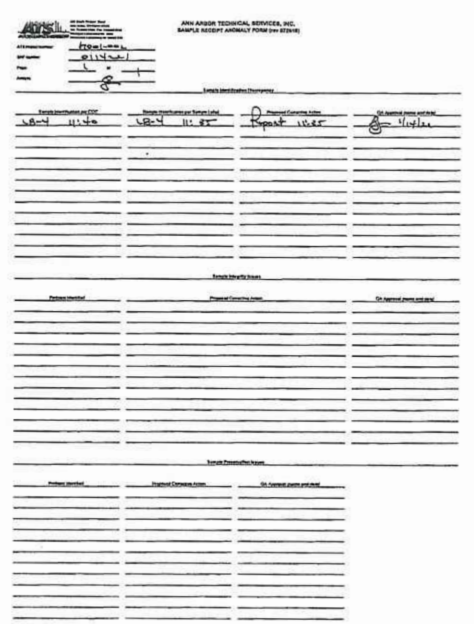
Comments: 45 Day Hold Time Outfall/EB -> Unpreserved All others-> HCl preserved

| # | Sample Identification | Date | Time | Laboratory Identification | No. of Containers | Turn-Around Time Priority Number* | EPA 1624 1,4-Dioxane |
|---|---|---|---|---|---|---|---|
| 1 | LB-4 | 1/13/2022 | ~~11:40~~ | 0114221-26 | 1 | 3 | x |
| 2 | TW-22 | 1/13/2022 | 13:45 | 27 | 1 | 3 | x |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

LB-4 = 11:35 per HT 1/14/22

* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard

---



### ANN ARBOR TECHNICAL SERVICES, INC.
### SAMPLE RECEIPT ANOMALY FORM (rev 072618)

ATS Project Number: G001-002

SRF Number: 0114221

Page: 1 of 1

Analyst:

#### Sample Identification Discrepancy

| Sample Identification per COC | Sample Identification per Sample Label | Proposed Corrective Action | QA Approval (name and date) |
|---|---|---|---|
| LB-4 11:40 | LB-4 11:35 | Report 11:35 | 1/14/22 |

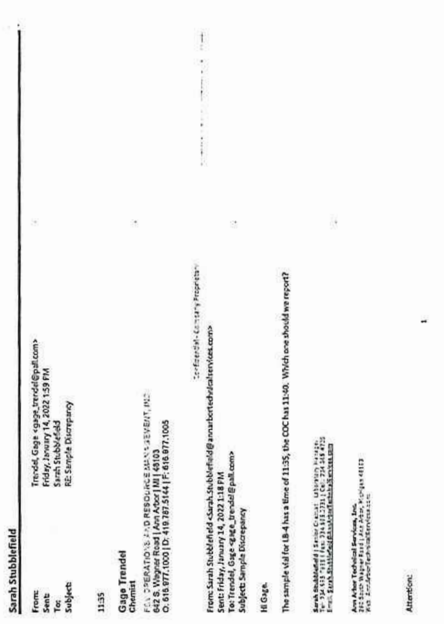
#### Sample Integrity Issues

| Problem Identified | Proposed Corrective Action | QA Approval (name and date) |
|---|---|---|
| | | |

#### Sample Preservation Issues

| Problem Identified | Proposed Corrective Action | QA Approval (name and date) |
|---|---|---|
| | | |

---



**Sarah Stubblefield**

**From:** Trendel, Gage <gage_trendel@pall.com>
**Sent:** Friday, January 14, 2022 1:59 PM
**To:** Sarah Stubblefield
**Subject:** RE: Sample Discrepancy

11:35

**Gage Trendel**
**Chemist**
PALL OPERATIONS AND RESOURCE MANAGEMENT, INC
642 S. Wagner Road | Ann Arbor | MI | 48103
O: 616.977.1000 | D: 419.787.5144 | F: 616.977.1005

Confidential - Company Proprietary

**From:** Sarah Stubblefield <Sarah.Stubblefield@annarbortechnicalservices.com>
**Sent:** Friday, January 14, 2022 1:18 PM
**To:** Trendel, Gage <gage_trendel@pall.com>
**Subject:** Sample Discrepancy

Hi Gage,

The sample vial for LB-4 has a time of 11:35, the COC has 11:40. Which one should we report?

**Sarah Stubblefield** | Senior Chemist · Laboratory Manager
Tel: 734.995.[illegible] | Fax: 734.995.3731 | Cell: 734.[illegible]
Email: Sarah.Stubblefield@AnnArborTechnicalServices.com

**Ann Arbor Technical Services, Inc.**
290 South Wagner Road | Ann Arbor, Michigan 48103
Web: AnnArborTechnicalServices.com

Attention:

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114221
SDG: 0114221A
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0114221-8 MSD | 01/15/2022 | 20:26:40 | 1,4-Dioxane | 123-91-1 | 0.833 | 0.833 | 1.81 | mg/L | Wet | 127 | 83 | 123 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.





## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY PRECISION SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114221
SDG: 0114221A
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Mean | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0114221-8 MS | 01/14/2022 | 23:43:13 | 1,4-Dioxane | 123-91-1 | 1.47 | | mg/L | Wet | | | |
| 0114221-8 MSD | 01/15/2022 | 00:26:40 | 1,4-Dioxane | 123-91-1 | 1.64 | 1.55 | mg/L | Wet | 10.4 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114221
SDG: 0114221A
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-1 1/14/22 | 01/14/2022 | 18:25:41 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.521 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY BLANK SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114222
SDG: 0114221B
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Reagent Blank (LRB) / Method Blank (MB)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Units | Basis | Method Detection Limit | Reporting Detection Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| LRB-2 1/14/22 | 01/15/2022 | 22:02:31 | 1,4-Dioxane | 123-91-1 | | mg/L | Wet | 0.521 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114221
SDG: 0114221A
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-1 1/14/22 | 01/14/2022 | 13:43:53 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.0108 | mg/L | Wet | 108 | 68 | 113 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114222
SDG: 0114221B
Project Number: G001-002.22
Report Date: 1/21/2022

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LFB-2 1/14/22 | 01/15/2022 | 22:05:53 | 1,4-Dioxane | 123-91-1 | | 0.0100 | 0.00989 | mg/L | Wet | 98.9 | 83 | 113 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

**QUALITY ASSURANCE / QUALITY CONTROL SUMMARY**
**LABORATORY ACCURACY SUMMARY**

Method: USEPA 1624
QA/QC Batch Number: QCORG0114221
SDG: 0114221A
Project Number: G001-002.22
Report Date: 1/21/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0114221-8 MS | 01/14/2022 | 23:43:13 | 1,4-Dioxane | 123-91-1 | 0.833 | 0.833 | 1.47 | mg/L | Wet | 107 | 83 | 123 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (RDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

## ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRG0115222
EDD: 01142218
Project Number: G001-002.22
Report Date: 1/31/2022

**Matrix Spike (MS)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 611422-23 MS | 01/30/2022 | 09:49 | 1,4-Dioxane | 123-91-1 | 0.496 | 8.929 | 7.81 | mg/L | Wet | 83.4 | 40 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.


## ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY ACCURACY SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRG0115222
EDD: 01142218
Project Number: G001-002.22
Report Date: 1/31/2022

**Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Sample Concentration | Spike Added | Measured Concentration | Units | Basis | Percent Recovery | LCL | UCL | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 611422-23 MSD | 01/30/2022 | 09:59 | 1,4-Dioxane | 123-91-1 | 0.496 | 8.929 | 7.79 | mg/L | Wet | 82.2 | 40 | 120 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.



## ANN ARBOR TECHNICAL SERVICES, INC.

QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

LABORATORY PRECISION SUMMARY

Method: USEPA 1624
QA/QC Batch Number: QCGRG0115222
EDD: 01142218
Project Number: G001-002.22
Report Date: 1/31/2022

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

| Lab Sample ID | Analysis Date | Analysis Time | Chemical Name | CAS | Result | Result | Units | Basis | RPD | Control Limit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 611422-23 MS | 01/30/2022 | 09:49 | 1,4-Dioxane | 123-91-1 | 7.81 | 7.79 | mg/L | Wet | 0.3 | 20 | |
| 611422-23 MSD | 01/30/2022 | 09:59 | 1,4-Dioxane | 123-91-1 | 1.19 | 1.22 | mg/L | Wet | 1.53 | 20 | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.


## 1,4-Dioxane by GC/MS

Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | Comb Eff | Analysis Date | 01/10/2022 13:28:28 |
| Laboratory Sample ID | 0110221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.


Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731



## 1,4-Dioxane by GC/MS

Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | EB-GC-2A | Analysis Date | 01/10/2022 14:56:07 |
| Laboratory Sample ID | 0110221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731



## 1,4-Dioxane by GC/MS

Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | BP-1 | Analysis Date | 01/10/2022 15:09:55 |
| Laboratory Sample ID | 0110221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.009 | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731



## 1,4-Dioxane by GC/MS

Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | Outlet Grab | Analysis Date | 01/10/2022 16:28:35 |
| Laboratory Sample ID | 0110221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCGRG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments:
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/10/2022 17:12:22 |
| Laboratory Sample ID | 0110221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | Comb Eff | Analysis Date | 01/11/2022 11:32:35 |
| Laboratory Sample ID | 0111221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 7:40 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | CBOD-1A | Analysis Date | 01/11/2022 14:53:24 |
| Laboratory Sample ID | 0111221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | E8-DC-2A | Analysis Date | 01/11/2022 15:44:15 |
| Laboratory Sample ID | 0111221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 7:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | SP-1 | Analysis Date | 01/11/2022 16:28:04 |
| Laboratory Sample ID | 0111221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/11/2022 17:12:00 |
| Laboratory Sample ID | 0111221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 7:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/11/2022 17:55:50 |
| Laboratory Sample ID | 0111221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 8:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | Comb Eff | Analysis Date | 01/12/2022 11:34:04 |
| Laboratory Sample ID | 0112221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDRG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | LR-OC-1A | Analysis Date | 01/12/2022 12:17:53 |
| Laboratory Sample ID | 0112221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.000 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | ER-OC-2A | Analysis Date | 01/12/2022 13:51:48 |
| Laboratory Sample ID | 0112221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.000 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | EP-1 | Analysis Date | 01/12/2022 13:40:33 |
| Laboratory Sample ID | 0112221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.027 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/12/2022 14:29:23 |
| Laboratory Sample ID | 0112221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/13/2022 16:13:10 |
| Laboratory Sample ID | 0113221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCOHG0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.007 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | Combination Effluent | Analysis Date | 01/13/2022 17:56:02 |
| Laboratory Sample ID | 0113221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | ER-OC-1A | Analysis Date | 01/13/2022 18:39:51 |
| Laboratory Sample ID | 0113221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | ER-OC-2A | Analysis Date | 01/13/2022 19:23:35 |
| Laboratory Sample ID | 0113221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | BP-1 | Analysis Date | 01/13/2022 20:07:35 |
| Laboratory Sample ID | 0113221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/13/2022 20:51:06 |
| Laboratory Sample ID | 0113221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/13/2022 21:34:45 |
| Laboratory Sample ID | 0113221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | Comb. Effluent | Analysis Date | 01/14/2022 18:38:14 |
| Laboratory Sample ID | 0114221-3 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:05 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | ER-OD-1a | Analysis Date | 01/14/2022 19:21:50 |
| Laboratory Sample ID | 0114221-4 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.004 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | ER-OD-2a | Analysis Date | 01/14/2022 20:05:35 |
| Laboratory Sample ID | 0114221-5 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | BP-1 | Analysis Date | 01/14/2022 20:49:08 |
| Laboratory Sample ID | 0114221-6 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | Outfall Grab | Analysis Date | 01/14/2022 21:32:37 |
| Laboratory Sample ID | 0114221-7 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCDR0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M – Indicates elevated reporting limit based upon sample dilution.
Sample analyzed at native pH.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114231A | Preparation Date | 01/14/2022 |
| Client Sample ID | Outfall Test | Analysis Date | 01/14/2022 22:16:11 |
| Laboratory Sample ID | 0114221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:25 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.035 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | MW-146 (102-197) | Analysis Date | 01/10/2022 16:47:27 |
| Laboratory Sample ID | 0110221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/07/2022 9:15 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | TW-33 | Analysis Date | 01/10/2022 18:23:36 |
| Laboratory Sample ID | 0110221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 12/09/2021 12:50 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.40 | 0.01 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0110221 | Preparation Date | 01/10/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/10/2022 12:44:33 |
| Laboratory Sample ID | 0110221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/05/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111231 | Preparation Date | 01/11/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/11/2022 17:56:05 |
| Laboratory Sample ID | 0111221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 7:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0110221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.38 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111231 | Preparation Date | 01/11/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/11/2022 18:45:58 |
| Laboratory Sample ID | 0111231-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/10/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0111221 | Preparation Date | 01/11/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/11/2022 18:39:42 |
| Laboratory Sample ID | 0111221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 7:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0111221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.43 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | Outfall 001 | Analysis Date | 01/12/2022 10:39:12 |
| Laboratory Sample ID | 0112221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.006 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/12/2022 19:56:53 |
| Laboratory Sample ID | 0112221-8 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 7:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.45 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0112221 | Preparation Date | 01/12/2022 |
| Client Sample ID | TW-10 | Analysis Date | 01/12/2022 16:40:39 |
| Laboratory Sample ID | 0112221-9 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/11/2022 12:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0112221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.55 | 0.01 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/13/2022 16:29:14 |
| Laboratory Sample ID | 0113221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/12/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0113221 | Preparation Date | 01/13/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/13/2022 17:12:09 |
| Laboratory Sample ID | 0113221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 7:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0113221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.40 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | Outfall | Analysis Date | 01/14/2022 17:10:34 |
| Laboratory Sample ID | 0114221-1 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 na | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.005 | 0.001 | | |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | Red Pond | Analysis Date | 01/14/2022 17:54:23 |
| Laboratory Sample ID | 0114221-2 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/14/2022 7:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.33 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-26 | Analysis Date | 01/14/2022 22:58:45 |
| Laboratory Sample ID | 0114221-0 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 10:58 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.02 | 0.04 | | M |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | MW-12Rs | Analysis Date | 01/15/2022 01:53:37 |
| Laboratory Sample ID | 0114221-10 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 10:54 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | MW-12S | Analysis Date | 01/15/2022 02:37:34 |
| Laboratory Sample ID | 0114221-11 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 12:01 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | MW-12M | Analysis Date | 01/15/2022 03:20:36 |
| Laboratory Sample ID | 0114221-12 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:11 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | MW-12S | Analysis Date | 01/15/2022 04:03:58 |
| Laboratory Sample ID | 0114221-13 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 14:33 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221A | Preparation Date | 01/14/2022 |
| Client Sample ID | MW-12M | Analysis Date | 01/15/2022 04:47:30 |
| Laboratory Sample ID | 0114221-14 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 15:42 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114221 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | ND | 0.001 | | U |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221B | Preparation Date | 01/14/2022 |
| Client Sample ID | 2610 Dexter Rd. | Analysis Date | 01/20/2022 10:39:50 |
| Laboratory Sample ID | 0114221-15 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 17:02 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.16 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221B | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-23 | Analysis Date | 01/20/2022 00:18:23 |
| Laboratory Sample ID | 0114221-16 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 11:48 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.40 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221B | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-26 | Analysis Date | 01/20/2022 01:02:53 |
| Laboratory Sample ID | 0114221-17 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 11:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.33 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48102

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 0114221B | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-21 | Analysis Date | 01/20/2022 01:46:24 |
| Laboratory Sample ID | 0114221-18 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 12:58 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.24 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-2055
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-16 | Analysis Date | 01/23/2022 02:29:47 |
| Laboratory Sample ID | 0114221-19 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 12:55 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.24 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | PW-1 | Analysis Date | 01/25/2022 02:13:16 |
| Laboratory Sample ID | 0114221-20 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.84 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-2 DOUBL | Analysis Date | 01/26/2022 03:56:29 |
| Laboratory Sample ID | 0114221-21 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:00 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.15 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-24 | Analysis Date | 01/26/2022 04:49:02 |
| Laboratory Sample ID | 0114221-22 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:10 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 2.3 | 0.04 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-20 | Analysis Date | 01/26/2022 05:23:26 |
| Laboratory Sample ID | 0114221-23 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:20 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 20 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.72 | 0.02 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-14 | Analysis Date | 01/25/2022 05:07:07 |
| Laboratory Sample ID | 0114221-24 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.12 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-17 | Analysis Date | 01/26/2022 11:23:34 |
| Laboratory Sample ID | 0114221-25 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:35 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 1 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.049 | 0.001 | | |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142218 | Preparation Date | 01/14/2022 |
| Client Sample ID | MW-4 | Analysis Date | 01/26/2022 07:34:35 |
| Laboratory Sample ID | 0114221-26 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 11:30 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 10 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QCORG0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.41 | 0.01 | | M |

Comments
All methods reference US EPA methods unless otherwise noted.
Calculations performed prior to rounding.
Project specific reporting limit (MDL) based upon lowest calibration standard.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
290 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731

## 1,4-Dioxane by GC/MS
### Data Summary Sheet

| | | | |
|---|---|---|---|
| ATS Project Number | G001-002.22 | Percent Moisture | 100.0 |
| ATS SDG Number | 01142219 | Preparation Date | 01/14/2022 |
| Client Sample ID | TW-22 | Analysis Date | 01/20/2022 08:18:20 |
| Laboratory Sample ID | 01142231-27 | Instrument | 2100V |
| Matrix | Water | Subsample (mL) | 5.000 |
| Sample Date | 01/13/2022 13:45 | Final Volume (mL) | 5.000 |
| Analytical Method (USEPA) | USEPA 1624 | Dilution Factor | 40 |
| Preparation Method (USEPA) | USEPA 1624 | Basis | Wet |
| QC Batch Number | QC01H0114222 | Units | mg/L |

| Parameter | Chemical Identifier | Result | MDL | PQL | Qual |
|---|---|---|---|---|---|
| 1,4-Dioxane | 123-91-1 | 0.47 | 0.04 | | M |

Comments:
Calculations performed prior to rounding.
M - Indicates elevated reporting limit based upon sample dilution.

Ann Arbor Technical Services, Inc.
200 South Wagner Road
Ann Arbor, Michigan 48103

Office: 734-995-0995
Fax: 734-995-3731