

DATA PACKAGE GENERAL CHEMISTRY

PROJECT NAME : FT MEADE TIPTON AIRFIELD PARCEL RI - PO 0111169

WESTON SOLUTIONS

1400 Weston Way

PO Box 2653

West Chester, PA - 19380

Phone No: 610-701-7400

ORDER ID : Q1193

ATTENTION : Nathan Fretz



Laboratory Certification ID # 20012



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Cover Page

Order ID : Q1193

Project ID : Ft Meade Tipton Airfield Parcel RI - PO 0111169

Client : Weston Solutions

Lab Sample Number

Q1193-01
Q1193-02

Client Sample Number

TAPIAL3-MW04S-012425-00-T3
TAPIAL2-MW01-012425-00-T2

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

Date: 2/3/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012



284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

CASE NARRATIVE

Weston Solutions

Project Name: Ft Meade Tipton Airfield Parcel RI - PO 0111169

Project # N/A

Chemtech Project # Q1193

Test Name: TOC

A. Number of Samples and Date of Receipt:

2 Water samples were received on 01/25/2025.

B. Parameters:

According to the Chain of Custody document, the following analyses were requested: Hardness, Total, Mercury, Metals ICP-TAL, METALS-TAL and TOC. This data package contains results for TOC.

C. Analytical Techniques:

The analysis of TOC was based on method 9060A.

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Blank Spike met requirements for all samples.

The Duplicate analysis met criteria for all samples.

The Matrix Spike analysis met criteria for all samples.

The Matrix Spike Duplicate analysis met criteria for all samples.

The Blank analysis did not indicate the presence of lab contamination.

The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following “ Results Qualifiers” are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers “P” for ICP instrument “PM” for ICP when Microwave Digestion is used “CV” for Manual Cold Vapor AA “AV” for automated Cold Vapor AA “CA” for MIDI-Distillation Spectrophotometric “AS” for Semi -Automated Spectrophotometric “C” for Manual Spectrophotometric “T” for Titrimetric “NR” for analyte not required to be analyzed
OR	Indicates the analyte’s concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time

GENERAL CHEMISTRY CONFORMANCE/NON-CONFORMANCE SUMMARY

CHEMTECH PROJECT NUMBER: Q1193

MATRIX: Water

METHOD: 9060A

	NA	NO	YES
1. Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
2. Matrix Spike Duplicate Recoveries Met Criteria			✓
If not met, list those compounds and their recoveries which fall outside the acceptable range.			
The Blank Spike met requirements for all samples.			
3. Sample Duplicate Analysis Met QC Criteria			✓
If not met, list those compounds and their recoveries which fall outside the acceptable range.			
4. Digestion Holding Time Met			✓
If not met, list number of days exceeded for each sample:			

ADDITIONAL COMMENTS:

QA REVIEW

Date

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q1193

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: SOHIL JODHANI

Date: 02/03/2025

LAB CHRONICLE

OrderID:	Q1193	OrderDate:	1/27/2025 9:32:00 AM
Client:	Weston Solutions	Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169
Contact:	Nathan Fretz	Location:	N31

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q1193-01	TAPIAL3-MW04S-012	WATER			01/24/25			01/25/25
	425-00-T3		TOC	9060A	13:45		01/28/25 13:24	
Q1193-02	TAPIAL2-MW01-0124	WATER			01/24/25			01/25/25
	25-00-T2		TOC	9060A	15:40		01/28/25 14:14	



SAMPLE DATA

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Report of Analysis

Client:	Weston Solutions	Date Collected:	01/24/25 13:45
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Date Received:	01/25/25
Client Sample ID:	TAPIAL3-MW04S-012425-00-T3	SDG No.:	Q1193
Lab Sample ID:	Q1193-01	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
TOC	10.0		1	0.19	0.50	1.00	mg/L		01/28/25 13:24	9060A

Comments: _____

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N = Spiked sample recovery not within control limits

Report of Analysis

Client:	Weston Solutions	Date Collected:	01/24/25 15:40
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Date Received:	01/25/25
Client Sample ID:	TAPIAL2-MW01-012425-00-T2	SDG No.:	Q1193
Lab Sample ID:	Q1193-02	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
TOC	2.40		1	0.19	0.50	1.00	mg/L		01/28/25 14:14	9060A

Comments: _____

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

D = Dilution

Q = indicates LCS control criteria did not meet requirements

H = Sample Analysis Out Of Hold Time

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits.

E = Indicates the reported value is estimated because of the presence of interference.

OR = Over Range

N =Spiked sample recovery not within control limits



QC RESULT SUMMARY

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Initial and Continuing Calibration Verification

Client: Weston Solutions	SDG No.: Q1193
Project: Ft Meade Tipton Airfield Parcel RI - PO 0111169	RunNo.: LB134451

Analyte	Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID: ICV1 TOC	mg/L	10.4	10	104	90-110	01/15/2025
Sample ID: CCV1 TOC	mg/L	10.1	10	101	90-110	01/28/2025
Sample ID: CCV2 TOC	mg/L	10.4	10	104	90-110	01/28/2025

Initial and Continuing Calibration Blank Summary

Client:	Weston Solutions	SDG No.:	Q1193
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	RunNo.:	LB134451

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: ICB1 TOC	mg/L	0.2	0.5000	J	0.19	1	01/15/2025
Sample ID: CCB1 TOC	mg/L	0.33	0.5000	J	0.19	1	01/28/2025
Sample ID: CCB2 TOC	mg/L	0.29	0.5000	J	0.19	1	01/28/2025

Preparation Blank Summary

Client: Weston Solutions

SDG No.: Q1193

Project: Ft Meade Tipton Airfield Parcel RI - PO 0111169

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID:	LB134451BLW						
TOC	mg/L	0.25	0.5000	J	0.19	1	01/28/2025

Matrix Spike Summary

Client:	Weston Solutions	SDG No.:	Q1193
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Sample ID:	Q1193-02
Client ID:	TAPIAL2-MW01-012425-00-T2MS	Percent Solids for Spike Sample:	0

Analyte	Units	Acceptance Limit %R	Spiked Result	Conc. Qualifier	Sample Result	Conc. Qualifier	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
TOC	mg/L	75-125	12.0		2.40		10	1	96		01/28/2025

Matrix Spike Summary

Client:	Weston Solutions	SDG No.:	Q1193
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Sample ID:	Q1193-02
Client ID:	TAPIAL2-MW01-012425-00-T2MSD	Percent Solids for Spike Sample:	0

Analyte	Units	Acceptance Limit %R	Spiked Result	Conc. Qualifier	Sample Result	Conc. Qualifier	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
TOC	mg/L	75-125	12.1		2.40		10	1	97		01/28/2025

Duplicate Sample Summary

Client:	Weston Solutions	SDG No.:	Q1193
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Sample ID:	Q1193-02
Client ID:	TAPIAL2-MW01-012425-00-T2MSD	Percent Solids for Spike Sample:	0

Analyte	Units	Acceptance Limit	Sample Result	Conc. Qualifier	Duplicate Result	Conc. Qualifier	Dilution Factor	RPD/AD	Qual	Analysis Date
TOC	mg/L	+/-20	12.0		12.1		1	1		01/28/2025

Laboratory Control Sample Summary

Client:	Weston Solutions	SDG No.:	Q1193
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Run No.:	LB134451

Analyte	Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	LB134451BSW							
TOC	mg/L	10	9.90		99	1	90-110	01/28/2025



RAW DATA

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Sample ID	Result	Std. Dev.	RSD	Mode	ALT
CCV1	10.0568	0.2145	2.13	TOC	
CCB1	0.3346	0.0343	10.24	TOC	
LB134451BLW	0.2463	0.0708	28.77	TOC	
LB134451BSW.....	9.8894...	0.1873..	1.89...	TOC	..
Q1168-11	1.0198	0.0654	6.41	TOC	
Q1168-10	0.6224	0.0564	9.06	TOC	
Q1193-01.....	9.9555...	0.2981..	2.99...	TOC	..
Q1193-02	2.4079	0.3184	13.22	TOC	
Q1193-02MS	11.9510	0.5038	4.22	TOC	
Q1193-02MSD.....	12.1050...	0.3785..	3.13...	TOC	..
Q1201-01	4.2155	0.1249	2.96	TOC	
CCV2	10.3707	0.1346	1.30	TOC	
CCB2.....	0.2854...	0.0508..	17.78...	TOC	..

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Method ID	Sample Type	Vial	Timestamp	Message
TOC 0 - 20 ppmC	Sample	11	2025/01/28 10:32	
TOC 0 - 20 ppmC	Sample	12	2025/01/28 10:56	Low Sample Detected
TOC 0 - 20 ppmC	Sample	13	2025/01/28 11:20	Low Sample Detected
TOC 0 - 20 ppmC	...Sample	.. 14..	2025/01/28 11:45	..
TOC 0 - 20 ppmC	Sample	10	2025/01/28 12:33	
TOC 0 - 20 ppmC	Sample	15	2025/01/28 12:57	
TOC 0 - 20 ppmC	...Sample	.. 16..	2025/01/28 13:24	..
TOC 0 - 20 ppmC	Sample	17	2025/01/28 14:14	
TOC 0 - 20 ppmC	Sample	18	2025/01/28 14:51	
TOC 0 - 20 ppmC	...Sample	.. 18..	2025/01/28 15:17	..
TOC 0 - 20 ppmC	Sample	19	2025/01/28 15:43	
TOC 0 - 20 ppmC	Sample	11	2025/01/28 16:09	
TOC 0 - 20 ppmC	...Sample	.. 12..	2025/01/28 16:33	..Low Sample Detected

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Sample ID: CCV1 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 10:32
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10.1313	5.0657	410167	-2.286	-2.088	157
2	10.1203	5.0602	409721	-2.296	-2.098	149
3	10.2315	5.1157	414222	-2.359	-2.160	151
4	9.7439	4.8719	394480	-2.353	-2.155	141

<<<Statistics>>> Mean: 10.0568 Std Dev: 0.2145 RSD: 2.13

Sample ID: CCB1 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 10:56
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.3086	0.1543	12494	-2.496	-2.453	120
2	0.3732	0.1866	15107	-2.530	-2.421	120
3	0.3536	0.1768	14315	-2.522	-2.513	120
4	0.3031	0.1516	12272	-2.519	-2.416	120

Last Message: Low Sample Detected

<<<Statistics>>> Mean: 0.3346 Std Dev: 0.0343 RSD: 10.24

Sample ID: LB134451BLW Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 11:20
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.1562	0.0781	6322	-2.493	-2.439	120
2	0.2462	0.1231	9967	-2.542	-2.442	120
3	0.2533	0.1267	10255	-2.538	-2.429	120
4	0.3293	0.1646	13331	-2.538	-2.508	120

Last Message: Low Sample Detected

<<<Statistics>>> Mean: 0.2463 Std Dev: 0.0708 RSD: 28.77

Sample ID: LB134451BSW Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 11:45
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	9.6179	4.8089	389381	-2.553	-2.357	142
2	10.0213	5.0106	405712	-2.531	-2.333	153
3	9.9123	4.9562	401300	-2.510	-2.311	141
4	10.0062	5.0031	405102	-2.509	-2.311	143

<<<Statistics>>> Mean: 9.8894 Std Dev: 0.1873 RSD: 1.89

Sample ID: Q1168-11 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 12:33
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.9635	0.4817	39006	-2.546	-2.349	132
2	0.9666	0.4833	39131	-2.561	-2.362	131
3	1.0951	0.5476	44337	-2.565	-2.373	132
4	1.0539	0.5269	42667	-2.556	-2.359	112
<<<Statistics>>> Mean: 1.0198 Std Dev: 0.0654 RSD: 6.41						

Sample ID: Q1168-10 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 12:57
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.6574	0.3287	26614	-2.580	-2.381	132
2	0.6834	0.3417	27669	-2.578	-2.381	130
3	0.5757	0.2879	23307	-2.555	-2.360	124
4	0.5733	0.2866	23209	-2.558	-2.360	126
<<<Statistics>>> Mean: 0.6224 Std Dev: 0.0564 RSD: 9.06						

Sample ID: Q1193-01 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 13:24
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	9.9898	4.9949	404438	-2.488	-2.289	180
2	9.5614	4.7807	387094	-2.453	-2.255	160
3	9.9847	4.9923	404230	-2.404	-2.205	156
4	10.2859	5.1430	416426	-2.421	-2.221	157
<<<Statistics>>> Mean: 9.9555 Std Dev: 0.2981 RSD: 2.99						

Sample ID: Q1193-02 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01280920
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 14:14
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	2.8703	1.4351	116203	-2.522	-2.322	147
2	2.3350	1.1675	94534	-2.516	-2.317	138
3	2.2812	1.1406	92354	-2.514	-2.314	148
4	2.1453	1.0726	86852	-2.505	-2.305	149
<<<Statistics>>> Mean: 2.4079 Std Dev: 0.3184 RSD: 13.22						

Sample ID: Q1193-02MS Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01281426
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/28 14:51

Operator ID: NF IZ

Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12.2770	6.1385	497035	-2.498	-2.300	158
2	12.4852	6.2426	505463	-2.470	-2.272	146
3	11.5234	5.7617	466525	-2.447	-2.247	150
4	11.5186	5.7593	466331	-2.455	-2.256	157

<<<Statistics>>> Mean: 11.9510 Std Dev: 0.5038 RSD: 4.22

Sample ID: Q1193-02MSD

Mode: TOC

Method: TOC 0 - 20 ppmC

Filename: 01281426

Cal. Curve: TOC WATER 0-20PPM

Timestamp: 2025/01/28 15:17

Operator ID: NF IZ

Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12.6275	6.3137	511224	-2.463	-2.264	169
2	12.1164	6.0582	490531	-2.409	-2.209	156
3	11.7538	5.8769	475854	-2.378	-2.179	165
4	11.9223	5.9611	482674	-2.402	-2.203	157

<<<Statistics>>> Mean: 12.1050 Std Dev: 0.3785 RSD: 3.13

Sample ID: Q1201-01

Mode: TOC

Method: TOC 0 - 20 ppmC

Filename: 01281426

Cal. Curve: TOC

WATER 0-20PPM

Timestamp: 2025/01/28 15:43

Operator ID: NF IZ

Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	4.3944	2.1972	177908	-2.464	-2.264	143
2	4.1231	2.0616	166925	-2.462	-2.265	151
3	4.1366	2.0683	167469	-2.477	-2.277	162
4	4.2081	2.1041	170366	-2.465	-2.269	159

<<<Statistics>>> Mean: 4.2155 Std Dev: 0.1249 RSD: 2.96

Sample ID: CCV2

Mode: TOC

Method: TOC 0 - 20 ppmC

Filename: 01281426

Cal. Curve: TOC WATER 0-20PPM

Timestamp: 2025/01/28 16:09

Operator ID: NF IZ

Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10.1804	5.0902	412154	-2.493	-2.295	154
2	10.3778	5.1889	420144	-2.512	-2.312	153
3	10.4364	5.2182	422518	-2.537	-2.339	156
4	10.4882	5.2441	424614	-2.563	-2.364	155

<<<Statistics>>> Mean: 10.3707 Std Dev: 0.1346 RSD: 1.30

Sample ID: CCB2

Mode: TOC

Method: TOC 0 - 20 ppmC

Filename: 01281426

Cal. Curve: TOC WATER 0-20PPM

Timestamp: 2025/01/28 16:33

Operator ID: NF IZ

Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
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```
-----
Last Message: Low Sample Detected
<<<Statistics>>>   Mean:    0.2854   Std Dev:    0.0508   RSD: 17.78
-----
```

```
<<<Statistics>>>      Mean:      0.2854      Std Dev:      0.0508      RSD: 17.78
```

Sample ID	Result	Std. Dev.	RSD	Mode	ALT
0.0PPM	6185	3006	48.60	TOC	
0.5PPM	27483	1110	4.04	TOC	
1.0PPM	48542	2267	4.67	TOC	
2.0PPM.....	88813...	1411..	1.59...	TOC	..
5.0PPM	211496	3458	1.64	TOC	
10.0PPM	411122	7732	1.88	TOC	
20.0PPM.....	817303...	2573..	0.31...	TOC	..
ICV1	10.3687	0.1121	1.08	TOC	
ICB1	0.2017	0.0756	37.49	TOC	
IC-20.....	0.1397...	0.0636..	45.51...	TOC	..
IC-R	0.1587	0.0461	29.04	TOC	

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Method ID	Sample Type	Vial	Timestamp	Message
TOC 0 - 20 ppmC	TOC Standard	1	2025/01/15 12:17	Low Sample Detected
TOC 0 - 20 ppmC	TOC Standard	2	2025/01/15 12:42	
TOC 0 - 20 ppmC	TOC Standard	3	2025/01/15 13:07	
TOC 0 - 20 ppmC	...TOC Standard	.. 4..	2025/01/15 13:33	..
TOC 0 - 20 ppmC	TOC Standard	5	2025/01/15 13:59	
TOC 0 - 20 ppmC	TOC Standard	6	2025/01/15 14:26	
TOC 0 - 20 ppmC	...TOC Standard	.. 7..	2025/01/15 14:53	..
TOC 0 - 20 ppmC	Sample	6	2025/01/15 15:19	
TOC 0 - 20 ppmC	Sample	12	2025/01/15 15:43	Low Sample Detected
TOC 0 - 20 ppmC	...Sample	.. 13..	2025/01/15 16:07	..Low Sample Detected
TOC 0 - 20 ppmC	Sample	12	2025/01/15 16:30	Low Sample Detected

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Sample ID: 5.0PPM Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 13:59
Operator ID: NF IZ Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			213032	-2.923	-2.726	159
2			206481	-2.832	-2.632	155
3			214311	-2.864	-2.669	157
4			212162	-2.841	-2.642	156

<<<Statistics>>> Mean: 211496 Std Dev: 3458 RSD: 1.64
=====

Sample ID: 10.0PPM Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 14:26
Operator ID: NF IZ Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			400085	-2.807	-2.610	142
2			415561	-2.803	-2.603	162
3			411583	-2.777	-2.577	163
4			417257	-2.811	-2.611	164

<<<Statistics>>> Mean: 411122 Std Dev: 7732 RSD: 1.88
=====

Sample ID: 20.0PPM Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 14:53
Operator ID: NF IZ Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			813925	-2.829	-2.632	177
2			819370	-2.836	-2.639	186
3			816671	-2.784	-2.585	170
4			819245	-2.792	-2.592	167

<<<Statistics>>> Mean: 817303 Std Dev: 2573 RSD: 0.31
=====

Sample ID: ICV1 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 15:19
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10.3813	5.1906	420285	-2.799	-2.599	166
2	10.2898	5.1449	416583	-2.760	-2.560	165
3	10.2812	5.1406	416233	-2.764	-2.566	161
4	10.5226	5.2613	426009	-2.781	-2.584	161

<<<Statistics>>> Mean: 10.3687 Std Dev: 0.1121 RSD: 1.08
=====

Sample ID: ICB1 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 15:43
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.1020	0.0510	4131	-2.785	-2.738	120
2	0.2012	0.1006	8145	-2.809	-2.743	120
3	0.2187	0.1094	8855	-2.803	-2.725	120
4	0.2849	0.1425	11535	-2.810	-2.721	120

Last Message: Low Sample Detected

<<<Statistics>>> Mean: 0.2017 Std Dev: 0.0756 RSD: 37.49
=====

Sample ID: IC-20 Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 16:07
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.0727	0.0364	2944	-2.769	-2.766	120
2	0.1400	0.0700	5666	-2.789	-2.763	120
3	0.2250	0.1125	9108	-2.792	-2.701	120
4	0.1209	0.0605	4896	-2.763	-2.755	120

Last Message: Low Sample Detected

<<<Statistics>>> Mean: 0.1397 Std Dev: 0.0636 RSD: 45.51
=====

Sample ID: IC-R Mode: TOC
Method: TOC 0 - 20 ppmC Filename: 01151309
Cal. Curve: TOC WATER 0-20PPM Timestamp: 2025/01/15 16:30
Operator ID: NF IZ Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.0924	0.0462	3742	-2.733	-2.739	120
2	0.1992	0.0996	8064	-2.788	-2.739	120
3	0.1732	0.0866	7014	-2.775	-2.722	120
4	0.1700	0.0850	6884	-2.758	-2.719	120

Last Message: Low Sample Detected

<<<Statistics>>> Mean: 0.1587 Std Dev: 0.0461 RSD: 29.04
=====

Calibration Report Print Date/Time: 2025/01/15 14:57:01

Cal. Curve ID: TOC WATER 0-20PPM
Created: 2025/01/15 14:54
Calibration Factor (m): 8.097e+04
Y Intercept (b): 7467
r-squared: 0.99999

Standard ID	Y	X Expected	Measured	Message	Date &
	Raw Data	ug C	ug C		Time
0.0PPM	6185	0.000	-0.016		2025/01/15 12:17
0.5PPM	27483	0.250	0.247	-0.2	2025/01/15 12:42
1.0PPM	48542	0.500	0.507	1.4	2025/01/15 13:07
2.0PPM	88813	1.000	1.005	0.5	2025/01/15 13:33
5.0PPM	211497	2.500	2.520	0.8	2025/01/15 13:59
10.0PPM	411122	5.000	4.985	-0.3	2025/01/15 14:26
20.0PPM	817303	10.000	10.002	0.0	2025/01/15 14:53

NF

01.15.2025

WORKLIST(Hardcopy Internal Chain)

LB134451

WorkList Name : TOC W-01282025 WorkList ID : 187208 Department : Wet-Chemistry Date : 01-28-2025 09:34:28

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1193-01	TAPIAL3-MW04S-012425-00-T1	Water	TOC	Conc H2SO4 to pH < 2	WEST04	N31	01/24/2025	9060A
Q1193-02	TAPIAL2-MW01-012425-00-T2	Water	TOC	Conc H2SO4 to pH < 2	WEST04	N31	01/24/2025	9060A
Q1201-01	TAPHHA-MW12-012725-00-T2	Water	TOC	Conc H2SO4 to pH < 2	WEST04	N31	01/27/2025	9060A
Q1168-10	LOD-MDL-WATER-04-QT1-202	Water	TOC	Conc H2SO4 to pH < 2	CHEM02	QA Of	01/23/2025	9060A
Q1168-11	LOQ-WATER-05-QT1-2025	Water	TOC	Conc H2SO4 to pH < 2	CHEM02	QA Of	01/23/2025	9060A

Date/Time 01-28-2025, 09:40
Raw Sample Received by: NF(wc)
Raw Sample Relinquished by: NF(wc)

Date/Time 01-28-2025, 15:00
Raw Sample Received by: NF(wc)
Raw Sample Relinquished by: NF(wc)

Instrument ID: TOC

Daily Analysis Runlog For Sequence/QC Batch ID # LB134451

Review By	Niha	Review On	1/31/2025 9:19:01 AM
Supervise By	Iwona	Supervise On	1/31/2025 11:12:44 AM
SubDirectory	LB134451	Test	TOC
STD. NAME	STD REF.#		
ICAL Standard	WP111441,WP111442,WP111443,WP111444,WP111445,WP111446		
ICV Standard	WP111448		
CCV Standard	WP111580		
ICSA Standard	N/A		
CRI Standard	N/A		
LCS Standard	WP111581		
Chk Standard	WP111453,WP111454,WP109953,WP111676,WP111677		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	0.0PPM	0.0PPM	CAL1	01/15/25 12:17		NF IZ	OK
2	0.5PPM	0.5PPM	CAL2	01/15/25 12:42		NF IZ	OK
3	1.0PPM	1.0PPM	CAL3	01/15/25 13:07		NF IZ	OK
4	2.0PPM	2.0PPM	CAL4	01/15/25 13:33		NF IZ	OK
5	5.0PPM	5.0PPM	CAL5	01/15/25 13:59		NF IZ	OK
6	10.0PPM	10.0PPM	CAL6	01/15/25 14:26		NF IZ	OK
7	20.0PPM	20.0PPM	CAL7	01/15/25 14:53		NF IZ	OK
8	ICV1	ICV1	ICV	01/15/25 15:19		NF IZ	OK
9	ICB1	ICB1	ICB	01/15/25 15:43		NF IZ	OK
10	IC-20	IC-20	SAM	01/15/25 16:07		NF IZ	OK
11	IC-R	IC-R	SAM	01/15/25 16:30		NF IZ	OK
12	CCV1	CCV1	CCV	01/28/25 10:32		NF IZ	OK
13	CCB1	CCB1	CCB	01/28/25 10:56		NF IZ	OK
14	LB134451BLW	LB134451BLW	MB	01/28/25 11:20		NF IZ	OK
15	LB134451BSW	LB134451BSW	LCS	01/28/25 11:45		NF IZ	OK
16	Q1168-11	LOQ-WATER-05-QT1	LOQ	01/28/25 12:33		NF IZ	OK
17	Q1168-10	LOD-MDL-WATER-04	SAM	01/28/25 12:57		NF IZ	OK
18	Q1193-01	TAPIAL3-MW04S-012	SAM	01/28/25 13:24		NF IZ	OK

Instrument ID: TOC

Daily Analysis Runlog For Sequence/QC Batch ID # LB134451

Review By	Niha	Review On	1/31/2025 9:19:01 AM
Supervise By	Iwona	Supervise On	1/31/2025 11:12:44 AM
SubDirectory	LB134451	Test	TOC
STD. NAME	STD REF.#		
ICAL Standard	WP111441,WP111442,WP111443,WP111444,WP111445,WP111446		
ICV Standard	WP111448		
CCV Standard	WP111580		
ICSA Standard	N/A		
CRI Standard	N/A		
LCS Standard	WP111581		
Chk Standard	WP111453,WP111454,WP109953,WP111676,WP111677		

19	Q1193-02	TAPIAL2-MW01-0124	SAM	01/28/25 14:14		NF IZ	OK
20	Q1193-02MS	TAPIAL2-MW01-0124	MS	01/28/25 14:51	2.0ml WP111578 +38.0ml Sample	NF IZ	OK
21	Q1193-02MSD	TAPIAL2-MW01-0124	MSD	01/28/25 15:17	2.0ml WP111578 +38.0ml Sample	NF IZ	OK
22	Q1201-01	TAPHHA-MW12-0127	SAM	01/28/25 15:43		NF IZ	OK
23	CCV2	CCV2	CCV	01/28/25 16:09		NF IZ	OK
24	CCB2	CCB2	CCB	01/28/25 16:33		NF IZ	OK

Prep Standard - Chemical Standard Summary

Order ID : Q1193

Test : TOC

Prepbatch ID :

Sequence ID/Qc Batch ID: LB134451,

Standard ID :

WP109953,WP110767,WP111436,WP111437,WP111439,WP111441,WP111442,WP111443,WP111444,WP111445,WP111446,WP111448,WP111449,WP111450,WP111451,WP111452,WP111453,WP111454,WP111578,WP111579,WP111580,WP111581,WP111676,WP111677,

Chemical ID :

M5501,M6041,W1992,W2647,W2784,W2800,W2860,W3016,W3017,W3020,W3022,W3058,W3112,W3167,W3169,

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
613	Phosphoric acid reagent	WP109953	09/25/2024	03/25/2025	Niha Farheen Shaik	None	None	Iwona Zarych
FROM 150.00000ml of W3112 + 50.00000ml of W2860 = Final Quantity: 200.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3886	Inorganic carbon stock solution, 1000ppm	WP110767	11/20/2024	05/20/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC SC-5)	None	Mohan Bera
FROM 3.49700gram of W2647 + 4.41220gram of W3058 + 993.00000ml of W3112 = Final Quantity: 1000.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2050	TOC STOCK STD, 4000PPM	WP111436	01/15/2025	07/15/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC)	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 5.00000ml of W2860 + 8.51200gram of W3169 + 990.00000ml of W3112 = Final Quantity: 1000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2051	TOC STOCK STD-SS, 4000PPM	WP111437	01/15/2025	06/30/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC)	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 5.00000ml of W2860 + 8.51200gram of W2784 + 990.00000ml of W3112 = Final Quantity: 1000.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3888	TOC Water Intermediate std-200ppm	WP111439	01/15/2025	01/22/2025	Niha Farheen Shaik	None	None	Iwona Zarych
								01/16/2025

FROM 95.00000ml of W3112 + 5.00000ml of WP111436 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
304	TOC CAL 0.00ppm	WP111441	01/15/2025	01/22/2025	Niha Farheen Shaik	None	None	Iwona Zarych
								01/16/2025

FROM 100.00000ml of W3112 = Final Quantity: 100.000 ml

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
305	TOC CAL 0.5ppm	WP111442	01/15/2025	01/22/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 99.75000ml of W3112 + 0.25000ml of WP111439 = Final Quantity: 100.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
306	TOC CAL 1.0PPM	WP111443	01/15/2025	01/22/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 99.50000ml of W3112 + 0.50000ml of WP111439 = Final Quantity: 100.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
307	TOC CAL 2.0PPM	WP111444	01/15/2025	01/22/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 99.00000ml of W3112 + 1.00000ml of WP111439 = Final Quantity: 100.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
308	TOC CAL 5.0PPM	WP111445	01/15/2025	01/22/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 97.50000ml of W3112 + 2.50000ml of WP111439 = Final Quantity: 100.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
310	TOC CAL 20.0PPM	WP111446	01/15/2025	01/22/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/16/2025

FROM 90.00000ml of W3112 + 10.00000ml of WP111439 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2819	TOC ICV-LCSS, 1000PPM	WP111448	01/15/2025	01/22/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/16/2025

FROM 15.00000ml of W3112 + 5.00000ml of WP111437 = Final Quantity: 20.000 ml

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4003	Solution A	WP111449	01/15/2025	07/15/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC SC-5)	None	Iwona Zarych 01/16/2025
FROM 1000.00000ml of W3112 + 2.56500gram of W3167 = Final Quantity: 1000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4004	Solution B	WP111450	01/15/2025	07/15/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC SC-5)	None	Iwona Zarych 01/16/2025
FROM 0.24800gram of W3020 + 0.28100gram of M5501 + 0.28300gram of W2800 + 0.59400gram of W1992 + 1000.00000ml of W3112 + 2.05000gram of W3017 = Final Quantity: 1000.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4005	Solution C	WP111451	01/15/2025	07/15/2025	Niha Farheen Shaik	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych 01/16/2025
FROM 0.70500gram of W3016 + 1000.00000ml of W3112 + 2.80600gram of W2647 = Final Quantity: 1000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4006	Solution D	WP111452	01/15/2025	07/15/2025	Niha Farheen Shaik	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych 01/16/2025
FROM 1.86200gram of W3022 + 1000.00000ml of W3112 = Final Quantity: 1000.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4007	IC-removal check solution	WP111453	01/15/2025	01/22/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 0.04000ml of M6041 + 10.00000ml of WP111449 + 10.00000ml of WP111450 + 10.00000ml of WP111451 + 10.00000ml of WP111452 = Final Quantity: 40.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3887	Inorganic carbon solution, 20ppm	WP111454	01/15/2025	01/22/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/16/2025
FROM 49.00000ml of W3112 + 1.00000ml of WP110767 = Final Quantity: 50.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3888	TOC Water Intermediate std-200ppm	WP111578	01/23/2025	01/30/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/28/2025
FROM 95.00000ml of W3112 + 5.00000ml of WP111436 = Final Quantity: 100.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3889	TOC Water Intermediate std SS-200ppm	WP111579	01/23/2025	01/30/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/28/2025
FROM 95.00000ml of W3112 + 5.00000ml of WP111437 = Final Quantity: 100.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3331	TOC CAL-CCV std, 10PPM	WP111580	01/23/2025	01/30/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/28/2025
FROM 190.00000ml of W3112 + 10.00000ml of WP111578 = Final Quantity: 200.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1650	TOC ICV/LCS STD. 10PPM	WP111581	01/23/2025	01/30/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/28/2025
FROM 190.00000ml of W3112 + 10.00000ml of WP111579 = Final Quantity: 200.000 ml								

Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3893	TOC MDL-LOD std, 0.5ppm	WP111676	01/28/2025	01/30/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/30/2025
FROM 99.75000ml of W3112 + 0.25000ml of WP111578 = Final Quantity: 100.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3892	TOC Water LOQ std 1.0ppm	WP111677	01/28/2025	01/30/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/30/2025
FROM 99.50000ml of W3112 + 0.50000ml of WP111578 = Final Quantity: 100.000 ml								

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	07/24/2023 / mohan	04/14/2023 / mohan	M5501

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J0660-1 / AMMONIUM CHLORIDE, ACS, 500G	WL13B	04/08/2025	04/08/2015 / apatel	04/08/2015 / apatel	W1992

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3506-5 / SODIUM BICARBONATE, PWD, ACS, 2.5KG	0000240594	06/03/2026	02/24/2020 / AMANDEEP	01/20/2020 / apatel	W2647

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	P243-500 / Potassium Hydrogen Phthalate, 500 gms	201089	06/30/2025	12/23/2020 / apatel	12/16/2020 / apatel	W2784

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3040-1 / POTASSIUM CHLORIDE, CRYST, ACS, 500G	198947	09/30/2025	03/08/2021 / apatel	03/08/2021 / apatel	W2800

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J0260-3 / Phosphoric Acid, 2.5 L	0000278313	01/31/2026	07/12/2021 / apatel	07/12/2021 / apatel	W2860

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	S9390-100G / Sodium phosphate dibasic heptahydrate	SLCP6576	11/30/2025	04/03/2023 / lwona	04/03/2023 / lwona	W3016

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	C7902-500G / Calcium chloride dihydrate - 500G	SLCP4280	08/31/2025	04/03/2023 / lwona	04/03/2023 / lwona	W3017

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Thermo Fisher Scientific	012364.36 / Calcium nitrate tetrahydrate, ACS, 99.0-103.0%	MKCS4612	09/30/2025	04/03/2023 / lwona	04/03/2023 / lwona	W3020

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	S4392-250G / Sodium metasilicate nonahydrate	SLCM8472	03/31/2025	04/05/2023 / lwona	04/05/2023 / lwona	W3022

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	EM-SX0395-3 / SODIUM CARBONATE ANHYDR 2.5KG	2023012653	10/19/2028	09/03/2024 / jignesh	10/19/2023 / lwona	W3058

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / lwona	07/03/2024 / lwona	W3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J2500-1 / MAGNESIUM SULFATE 7-HYDRATE CRYSTALS 500G	24J2856877	05/29/2027	01/03/2025 / lwona	01/03/2025 / lwona	W3167

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	P243-500 / Potassium Hydrogen Phthalate, 500 gms	24H0956262	04/28/2026	01/03/2025 / lwona	01/03/2025 / lwona	W3169

Certificate of Analysis



Date of Release: 12/18/2013

Product: Ammonium Chloride GR ACS

Catalog No.: AX1270 all
size codes

Grade: Meets ACS Specifications

CAS #: 12125-02-9

Country of Origin: India

FW: 53.49

Lot No.: WL13B



Characteristic	Requirement		Results	UOM
	Minimum	Maximum		
Assay (argentometric)	99.5		99.9	%
Calcium (Ca)		0.001	0.0001	%
Form	White crystals		White crystals	
Heavy metals (as Pb)		5	5	ppm
Identification	To pass test		Passes	
Insoluble matter		0.005	0.002	%
Iron (Fe)		2	2	ppm
Loss on drying (105 C)		0.5	0.21	%
Magnesium (Mg)		5	0.6	ppm
pH of a 5% solution at 25 C	4.5	5.5	4.76	
Phosphate (PO4)		2	2	ppm
Residue after ignition		0.01	0.002	%
Sulfate (SO4)		0.002	0.002	%

Joe Schoellkopf

Quality Control Manager

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Sodium Bicarbonate, Powder
BAKER ANALYZED® A.C.S. Reagent

(sodium hydrogen carbonate)



Material No.: 3506-05
Batch No.: 0000240594
Manufactured Date: 2019/06/05
Retest Date: 2026/06/03
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (NaHCO ₃) (dried basis)	99.7 – 100.3 %	100.1
Insoluble Matter	<= 0.015 %	< 0.002
Chloride (Cl)	<= 0.003 %	0.003
Phosphate (PO ₄)	<= 0.001 %	0.001
Sulfur Compounds (as SO ₄)	<= 0.003 %	0.003
Calcium (Ca)	<= 0.02 %	0.02
Trace Impurities – Iron (Fe)	<= 0.001 %	0.001
Magnesium (Mg)	<= 0.005 %	0.005
Potassium (K)	<= 0.005 %	0.005
Ammonium (NH ₄)	<= 5 ppm	5
Trace Impurities – ACS – Heavy Metals (as Pb)	<= 5 ppm	5

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Phosphoric Acid
BAKER ANALYZED® A.C.S. Reagent

(orthophosphoric acid)



Material No.: 0260-03
Batch No.: 0000278313
Manufactured Date: 2021/02/01
Retest Date: 2026/01/31
Revision No: 2

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H ₃ PO ₄) (by acidimetry)	85.0 – 87.0 %	85.8
Calcium (Ca)	<= 0.002 %	< 0.001
Color (APHA)	<= 10	5
Insoluble Matter	<= 0.001 %	< 0.001
ACS – Magnesium (Mg)	<= 0.002 %	<0.002
Sulfate (SO ₄)	<= 12 ppm	< 4
Volatile Acids (as CH ₃ COOH)	<= 0.001 %	0.001
Reducing Substances	Passes Test	PT
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO ₃)	<= 5 ppm	< 2
Trace Impurities – Antimony (Sb)	<= 20.000 ppm	0.007
Trace Impurities – Arsenic (As)	<= 0.500 ppm	< 0.001
Trace Impurities – Iron (Fe)	<= 10.000 ppm	< 1.000
Heavy Metals (as Pb)	<= 8 ppm	< 3
Trace Impurities – Manganese (Mn)	<= 0.500 ppm	0.005
Trace Impurities – Potassium (K)	<= 40.000 ppm	< 0.001
Trace Impurities – Sodium (Na)	<= 200.000 ppm	0.082

For Laboratory, Research or Manufacturing Use

Exceeds A.C.S. Specifications

Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US

Packaging Site: Phillipsburg Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

W 3016
Rec 04/03/23 12

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.comEmail USA: techserv@sial.comOutside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Sodium phosphate dibasic heptahydrate - ACS reagent, 98.0-102.0%

Product Number: S9390
Batch Number: SLCP6576
Brand: SIGALD
CAS Number: 7782-85-6
MDL Number: MFCD00149180
Formula: $\text{HNa}_2\text{O}_4\text{P} \cdot 7\text{H}_2\text{O}$
Formula Weight: 268.07 g/mol
Quality Release Date: 02 NOV 2022
Recommended Retest Date: NOV 2025

 $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$

Test	Specification	Result
Appearance (Color)	White	White
Appearance (Form)	Powder	Powder
Assay	98.0 - 102.0 %	99.8 %
Insoluble Matter	≤ 0.005 %	0.003 %
Chloride (Cl) < or = 0.001%	Pass	Pass
Sulfate < or = 0.005%	Pass	Pass
Iron (Fe) < or = 0.001%	Pass	Pass
Heavy Metals by ICP	< = 0.001%	< 0.001%
pH of 5% solution at 25 deg C	8.7 - 9.3	9.2
Note ACS Tests		



Brian Dulle, Supervisor
Quality Assurance
St. Louis, Missouri US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.



W 3017
Rec 4/3/23 12

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.comEmail USA: techserv@sial.comOutside USA: eurtechserv@sial.com

Product Name:

Certificate of Analysis

Calcium chloride dihydrate - BioReagent, suitable for cell culture, suitable for insect cell culture, suitable for plant cell culture, $\geq 99.0\%$

Product Number: C7902



Batch Number: SLCP4280

Brand: SIGMA

CAS Number: 10035-04-8

MDL Number: MFCD00149613

Formula: $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$

Formula Weight: 147.01 g/mol

Quality Release Date: 14 NOV 2022

Recommended Retest Date: AUG 2025

Test	Specification	Result
Appearance (Color)	White	White
Appearance (Form)	Powder	Powder
Solubility (Color)	Colorless	Colorless
Solubility (Turbidity)	Clear	Clear
294 mg/mL, H ₂ O		
Titration with EDTA	99.0 - 105.0 %	103.3 %
Cell Culture Test	Pass	Pass
Insect Cell Test	Pass	Pass
Plant Cell Culture Test	Pass	Pass



Brian Dulle, Supervisor
Quality Assurance
St. Louis, Missouri US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.



W 3020
Rec. 4/3/23

12

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.comEmail USA: techserv@sial.comOutside USA: eurtechserv@sial.com

Product Name:

Certificate of Analysis**Calcium nitrate tetrahydrate - ACS reagent, 99%**

Product Number: 237124
Batch Number: MKCS4612
Brand: SIGALD
CAS Number: 13477-34-4
MDL Number: MFCD00149604
Formula: $\text{CaN}_2\text{O}_6 \cdot 4\text{H}_2\text{O}$
Formula Weight: 236.15 g/mol
Quality Release Date: 27 FEB 2023
Recommended Retest Date: SEP 2025

 $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$

Test	Specification	Result
Appearance (Color)	White	White
Appearance (Form)	Conforms to Requirements	Crystals
Granular Powder or Crystals or Flakes		
Complexometric EDTA	99.0 - 103.0 %	99.6 %
X-Ray Diffraction	Conforms to Structure	Conforms
pH	5.0 - 7.0	5.4
c = 5%, Water, 25 Deg C		
Insoluble Matter	$\leq 0.005 \%$	$< 0.001 \%$
c = 10%, Water		
Chloride Content	$\leq 0.005 \%$	$< 0.005 \%$
Nitrite (NO_2)	$\leq 0.001 \%$	$< 0.001 \%$
Sulfate (SO_4)	$\leq 0.002 \%$	$< 0.002 \%$
Barium	$\leq 0.005 \%$	$< 0.001 \%$
Heavy Metals	$\leq 5.0 \text{ ppm}$	$< 1.0 \text{ ppm}$
by ICP-OES		
Iron (Fe)	$\leq 5.0 \text{ ppm}$	$< 1.0 \text{ ppm}$
Magnesium (Mg)	$\leq 0.05 \%$	$< 0.01 \%$
Potassium (K)	$\leq 0.005 \%$	$< 0.001 \%$
Sodium (Na)	$\leq 0.01 \%$	$< 0.01 \%$
Strontium (Sr)	$\leq 0.05 \%$	$< 0.01 \%$
Meets ACS Requirements	Current ACS Specification	Conforms

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.



W3020

Sigma-Aldrich

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 237124
Batch Number: MKCS4612

Test	Specification	Result
Recommended Retest Period 3 Years		



Larry Coers, Director
Quality Control
Milwaukee, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.



W 3022

Rec. 4/5/23 12

3050 Spruce Street, Saint Louis, MO 63103, USA

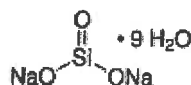
Website: www.sigmaaldrich.comEmail USA: techserv@sial.comOutside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Sodium metasilicate nonahydrate - $\geq 98\%$

Product Number: S4392
Batch Number: SLCM8472
Brand: ALDRICH
CAS Number: 13517-24-3
MDL Number: MFCD00149175
Formula: $\text{Na}_2\text{O}_3\text{Si} \cdot 9\text{H}_2\text{O}$
Formula Weight: 284.20 g/mol
Quality Release Date: 14 MAR 2022
Recommended Retest Date: MAR 2025



Test	Specification	Result
Appearance (Color)	White	White
Appearance (Form)	Powder	Powder
Solubility (Color)	Colorless	Colorless
Solubility (Turbidity)	Clear	Clear
50 mg/ml, H ₂ O		
Titration with HCl	$\geq 98\%$	100 %



Brian Dulle, Supervisor
Quality Assurance
St. Louis, Missouri US

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Certificate Of Analysis



W 3058

Re. 10/19/23 12

Date of Release: 1/27/2023

Name: **Sodium Carbonate, Anhydrous**

Powder, ACS

Item No: **SX0395 All Sizes**

Lot / Batch No: **2023012653**

Country of Origin: **India**

Item	Specifications	Analysis
Assay (calculated on dried substance)	99.5% min.	100.2%
Calcium (Ca)	0.03% max.	0.004%
Chloride (Cl)	0.001% max.	<0.001%
Color	White	Passes Test
Form	Powder	Passes Test
Heavy metals (by ICP-OES)	5 ppm max.	<5 ppm
Insoluble Matter	0.01% max.	0.003%
Iron (Fe)	5 ppm max.	<5 ppm
Loss on heating at 285C	1.0% max.	0.1%
Magnesium (Mg)	0.005% max.	0.0008%
Phosphate (PO ₄)	0.001% max.	<0.001%
Potassium (K)	0.005% max.	0.003%
Silica (SiO ₂)	0.005% max.	<0.005%
Sulfur compounds (as SO ₄)	0.003% max.	<0.003%

Joe Schoellkopf

Quality Control Manager

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EMD Millipore is a division of Merck KGaA, Darmstadt, Germany

EMD Millipore Corporation

400 Summit Drive
Burlington, MA 01803
U.S.A.

Form number: 00005624CA, Rev. 2.0

Certificate of Analysis

1 Reagent Lane
 Fair Lawn, NJ 07410
 201.796.7100 tel
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	P217	Quality Test / Release Date	09/03/2020
Lot Number	198947		
Description	POTASSIUM CHLORIDE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Sep/2025
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	White crystals
ASSAY	%	Inclusive Between 99.0 - 100.5	99.7
BARIUM (Ba)	PASS/FAIL	= P.T. (ABOUT 0.001%)	P.T. (ABOUT 0.001%)
BROMIDE	%	<= 0.01	<0.01
CALCIUM	%	<= 0.002	<0.002
CHLORATE & NITRATE	%	<= 0.003	<0.001
HEAVY METALS (as Pb)	ppm	<= 5	<5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
INSOLUBLE MATTER	%	<= 0.005	<0.005
IODIDE	%	<= 0.002	<0.002
IRON (Fe)	ppm	<= 2	<1
MAGNESIUM	%	<= 0.001	<0.0005
PH 5% SOLUTION @ 25 DEG C		Inclusive Between 5.4 - 8.6	6.0
PHOSPHATE (PO4)	ppm	<= 5	<5
SODIUM (Na)	%	<= 0.005	<0.005
SULFATE (SO4)	%	<= 0.001	<0.001

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
 If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.

Certificate of Analysis

ThermoFisher
SCIENTIFIC

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 faxThermo Fisher Scientific's Quality System has been found to conform to Quality Management System
Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	P243	Quality Test / Release Date	06/19/2020
Lot Number	201089		
Description	POTASSIUM HYDROGEN PHTHALATE, ACIDIMETRIC STANDARD, A.C.S.		
Country of Origin	Spain	Suggested Retest Date	Jun/2025
Chemical Origin	Organic - non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	WHITE CRYSTALS
ASSAY POTASSIUM HYDROGEN PHTHALATE	%	Inclusive Between 99.95 - 100.05	100.03
CHLORINE COMPOUNDS	%	<= 0.003	<0.003
HEAVY METALS (as Pb)	ppm	<= 5	<5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
INSOLUBLE MATTER	%	<= 0.005	<0.005
IRON (Fe)	ppm	<= 5	<5
PH OF 0.05M SOLUTION		Inclusive Between 4.00 - 4.02	4.00
SODIUM (Na)	%	<= 0.005	<0.005
SULFUR COMPOUNDS	%	<= 0.002	<0.002%
TRACEABLE TO NIST	SOD CARBONATE	= LOT 351a	351a
TRACEABLE TO NIST KHP STD	POT. ACID PHTHALATE	= LOT 84L	84L



Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



M5497 - M5508
And on 4/14/23
063

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

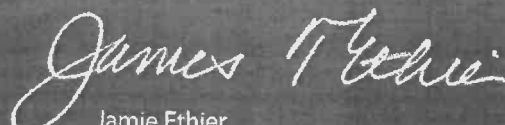
Retest Date: 2026-06-07

Revision No.: 2

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO ₃)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO ₄)	≤ 5 ppm	< 5 ppm
Sulfate (SO ₄)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™



M 6041-4b
MS

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H ₂ SO ₄)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO ₂)	≤ 2 ppm	< 2 ppm
Ammonium (NH ₄)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO ₃)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO ₄)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

 **avantor™**

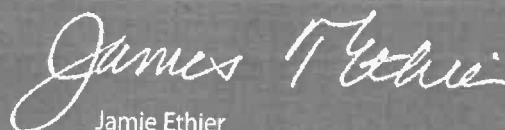


Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Ethier
Vice President Global Quality

Magnesium Sulfate Heptahydrate

Material: 0662
Grade: ACS GRADE
Batch Number: 24J2856877

Chemical Formula: $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
Molecular Weight: 246.48
CAS #: 10034-99-8
Appearance:

Manufacture Date: 05/29/2023
Reassay Date: 05/29/2027

Storage: Room Temperature

White powder

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Ammonium	$\leq 0.002 \%$	$<0.001 \%$	PASS
Calcium	$\leq 0.02 \%$	$<0.0005 \%$	PASS
Chloride	$\leq 0.0005 \%$	0.0001%	PASS
Heavy Metals (as Pb)	$\leq 0.0005 \%$	$<0.0001 \%$	PASS
Insolubles	$\leq 0.005 \%$	$<0.0002 \%$	PASS
Iron	$\leq 0.0005 \%$	$<0.00001 \%$	PASS
Manganese	$\leq 0.0005 \%$	$<0.0001 \%$	PASS
Nitrate	$\leq 0.002 \%$	$<0.001 \%$	PASS
pH (5%, Water) @25C	5.0 - 8.2	6.3	PASS
Potassium	$\leq 0.005 \%$	$<0.001 \%$	PASS
Purity	98.0 - 102.0 %	100.1 %	PASS
Sodium	$\leq 0.005 \%$	$<0.001 \%$	PASS
Strontium	$\leq 0.005 \%$	$<0.00001 \%$	PASS

Internal ID #: 793

Signature	Additional Information
We certify that this batch conforms to the specifications listed. This document has been electronically produced and is valid without a signature. Leona Edwardson, Quality Control Sr. Manager - Solon VWR Chemicals, LLC. 28600 Fountain Parkway, Solon OH 44139 USA	Analysis may have been rounded to significant digits in specification limits. Product meets analytical specifications of the grades listed.



Magnesium Sulfate Heptahydrate

Material: 0662
Grade: ACS GRADE
Batch Number: 24J2856877

Chemical Formula: $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
Molecular Weight: 246.48
CAS #: 10034-99-8
Appearance:

Manufacture Date: 05/29/2023
Reassay Date: 05/29/2027

Storage: Room Temperature

White powder

Spec Set: 0662ACS

Internal ID #: 793

Signature	Additional Information
We certify that this batch conforms to the specifications listed.	Analysis may have been rounded to significant digits in specification limits.
This document has been electronically produced and is valid without a signature.	Product meets analytical specifications of the grades listed.
Leona Edwardson, Quality Control Sr. Manager - Solon VWR Chemicals, LLC. 28600 Fountain Parkway, Solon OH 44139 USA	

Material	BDH9260-500G
Material Description	BDH POTASS HYDRGN PHTHLTE 500G
Grade	ACS GRADE
Batch	24H0956262
Reassay Date	04/28/2026
CAS Number	877-24-7
Molecular Formula	HOCC6H4COOK
Molecular Mass	204.22
Date of Manufacture	04/29/2023
Storage	Room Temperature

Characteristics	Specifications	Measured Values
Appearance	White crystals.	White crystals.
Assay (dried basis)	99.95 - 100.05 %	99.98 %
Chlorine Compounds	<= 0.003 %	<0.003 %
Heavy Metals (as Pb)	<= 5 ppm	<5 ppm
Insoluble Matter	<= 0.005 %	0.003 %
Iron	<= 5 ppm	<5 ppm
pH (0.05M, Water) @25C	4.00 - 4.02	4.00
Sodium	<= 0.005 %	<0.005 %
Sulfur Compounds	<= 0.002 %	<0.002 %

Internal ID #: 322

Signature	Additional Information
We certify that this batch conforms to the specifications listed above. This document has been electronically produced and is valid without a signature. Leona Edwardson, Quality Control Sr. Manager - Solon VWR Chemicals, LLC. 28600 Fountain Parkway, Solon OH 44139 USA	Analysis may have been rounded to significant digits in specification limits Product meets analytical specifications of the grades listed.



SHIPPING DOCUMENTS

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Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488