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Cover Page

Order ID : P5051

Project ID : Industrial Wastewater Discharge Permit - Fall 2024

Client : New York City DEP of Environmental Protection/BWS

Lab Sample Number	Client Sample Number
P5051-01	14B-1
P5051-02	14B-2
P5051-03	14B-3
P5051-04	14B-4
P5051-05	P5051-04MS
P5051-06	P5051-04MSD
P5051-07	14B-(1-4)-COMP

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: 12/19/2024

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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CASE NARRATIVE

New York City DEP of Environmental Protection/BWS
Project Name: Industrial Wastewater Discharge Permit - Fall 2024
Project # N/A
Chemtech Project # P5051
Test Name: Hexavalent Chromium,Non-Polar Material,Cyanide,Field pH,Cyanide-Amenable,Field Temperature,TSS

A. Number of Samples and Date of Receipt:
7 Water samples were received on 12/02/2024.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Cyanide-Amenable, Field pH, Field Temperature, Hexavalent Chromium, Mercury, Metals Group1, Metals ICP-Group1, Non-Polar Material, TSS and VOCMS Group1. This data package contains results for Hexavalent Chromium,Non-Polar Material,Cyanide,Field pH,Cyanide-Amenable,Field Temperature,TSS.

C. Analytical Techniques:
The analysis of Non-Polar Material was based on method 1664A, The analysis of TSS was based on method SM2540 D, The analysis of Field Temperature was based on method SM2550-B, The analysis of Hexavalent Chromium was based on method SM3500-Cr B, The analysis of Cyanide-Amenable was based on method SM4500-CN B,G Cyanide-Amenable, The analysis of Cyanide was based on method SM4500-CN C,E and The analysis of Field pH was based on method SM4500-H B.

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_____

Alliance TECHNICAL GROUP

284 Sheffield Street, Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

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

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: **P5051**

	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 Castody	✓
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:** **12/19/2024**

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LAB CHRONICLE

OrderID:	P5051	**OrderDate:**	12/2/2024 2:00:00 PM
Client:	New York City DEP of Environmental Protection/BWS	**Project:**	Industrial Wastewater Discharge Permit - Fall 2024
Contact:	Nicholas Prokopowicz	**Location:**	M11,VOA Ref. #3 Water

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P5051-01	**14B-1**	**WATER**			**12/02/24 07:33**			**12/02/24**
			Field pH	SM4500-H B			12/02/24 07:38	
			Field Temperature	SM2550-B			12/02/24 07:38	
			Non-Polar Material	1664A			12/07/24 10:10	
			TSS	SM2540 D			12/03/24 09:40	
P5051-02	**14B-2**	**WATER**			**12/02/24 08:33**			**12/02/24**
			Field pH	SM4500-H B			12/02/24 08:38	
			Field Temperature	SM2550-B			12/02/24 08:38	
			Non-Polar Material	1664A			12/07/24 10:10	
			TSS	SM2540 D			12/03/24 09:40	
P5051-03	**14B-3**	**WATER**			**12/02/24 09:33**			**12/02/24**
			Field pH	SM4500-H B			12/02/24 09:39	
			Field Temperature	SM2550-B			12/02/24 09:39	
			Non-Polar Material	1664A			12/07/24 10:10	
			TSS	SM2540 D			12/03/24 09:40	

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LAB CHRONICLE

P5051-04	**14B-4**	**WATER**			**12/02/24 10:33**		**12/02/24**
			Field pH	SM4500-H B		12/02/24 10:38	
			Field Temperature	SM2550-B		12/02/24 10:38	
			Non-Polar Material	1664A		12/07/24 10:10	
			TSS	SM2540 D		12/03/24 09:40	
P5051-07	**14B-(1-4)-COMP**	**WATER**			**12/02/24 12:00**		**12/02/24**
			Cyanide-Amenable	SM4500-CN B,G Cyanide-Amenable		12/05/24 00:00	
			Cyanide	SM4500-CN C,E	12/05/24	12/05/24 13:47	
			Hexavalent Chromium	SM3500-Cr B		12/02/24 16:54	

SAMPLE DATA

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Report of Analysis

Client:	New York City DEP of Environmental Protection/BWS	Date Collected:	12/02/24 07:33
Project:	Industrial Wastewater Discharge Permit - Fall 2024	Date Received:	12/02/24
Client Sample ID:	14B-1	SDG No.:	P5051
Lab Sample ID:	P5051-01	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Field pH	6.61		1	0	0	pH		12/02/24 07:38	SM4500-H B
Field Temperature	11.4		1	0	0	o C		12/02/24 07:38	SM 2550 B-10
Non-Polar Material	0.70	J	1	0.40	5.00	mg/L		12/07/24 10:10	1664A
TSS	4110		1	1.00	4.00	mg/L		12/03/24 09:40	SM 2540 D-15

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

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Report of Analysis

Client:	New York City DEP of Environmental Protection/BWS	Date Collected:	12/02/24 08:33
Project:	Industrial Wastewater Discharge Permit - Fall 2024	Date Received:	12/02/24
Client Sample ID:	14B-2	SDG No.:	P5051
Lab Sample ID:	P5051-02	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Field pH	6.73		1	0	0	pH		12/02/24 08:38	SM4500-H B
Field Temperature	10.4		1	0	0	o C		12/02/24 08:38	SM 2550 B-10
Non-Polar Material	0.40	U	1	0.40	5.00	mg/L		12/07/24 10:10	1664A
TSS	3650		1	1.00	4.00	mg/L		12/03/24 09:40	SM 2540 D-15

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

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Report of Analysis

Client:	New York City DEP of Environmental Protection/BWS	Date Collected:	12/02/24 09:33
Project:	Industrial Wastewater Discharge Permit - Fall 2024	Date Received:	12/02/24
Client Sample ID:	14B-3	SDG No.:	P5051
Lab Sample ID:	P5051-03	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Field pH	6.75		1	0	0	pH		12/02/24 09:39	SM4500-H B
Field Temperature	11.1		1	0	0	o C		12/02/24 09:39	SM 2550 B-10
Non-Polar Material	0.70	J	1	0.40	5.00	mg/L		12/07/24 10:10	1664A
TSS	3710		1	1.00	4.00	mg/L		12/03/24 09:40	SM 2540 D-15

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

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Report of Analysis

Client:	New York City DEP of Environmental Protection/BWS	Date Collected:	12/02/24 10:33
Project:	Industrial Wastewater Discharge Permit - Fall 2024	Date Received:	12/02/24
Client Sample ID:	14B-4	SDG No.:	P5051
Lab Sample ID:	P5051-04	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Field pH	6.71		1	0	0	pH		12/02/24 10:38	SM4500-H B
Field Temperature	12.0		1	0	0	o C		12/02/24 10:38	SM 2550 B-10
Non-Polar Material	0.70	J	1	0.40	5.00	mg/L		12/07/24 10:10	1664A
TSS	4840		1	1.00	4.00	mg/L		12/03/24 09:40	SM 2540 D-15

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

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Report of Analysis

Client:	New York City DEP of Environmental Protection/BWS	Date Collected:	12/02/24 00:00
Project:	Industrial Wastewater Discharge Permit - Fall 2024	Date Received:	12/02/24
Client Sample ID:	14B-(1-4)-COMP	SDG No.:	P5051
Lab Sample ID:	P5051-07	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.0041	J	1	0.00093	0.0050	mg/L	12/05/24 09:00	12/05/24 13:47	SM 4500-CN C-16 plus E-16
Cyanide-Amenable	0.0010	U	1	0.0010	0.0050	mg/L		12/05/24 00:00	SM 4500-CN B-16 plus G-16
Dissolved Hexavalent Chromium	0.0020	U	1	0.0020	0.010	mg/L		12/02/24 16:54	SM 3500-Cr B-11

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: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **RunNo.:** LB133695

Analyte	Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID: ICV						
Hexavalent Chromium	mg/L	0.499	0.5	100	95-105	12/02/2024
Sample ID: CCV1						
Hexavalent Chromium	mg/L	0.501	0.5	100	90-110	12/02/2024
Sample ID: CCV2						
Hexavalent Chromium	mg/L	0.500	0.5	100	90-110	12/02/2024

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Initial and Continuing Calibration Verification

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **RunNo.:** LB133772

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
Cyanide		mg/L	0.097	0.099	98	85-115	12/05/2024
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	12/05/2024
Sample ID:	CCV2						
Cyanide		mg/L	0.25	0.25	100	90-110	12/05/2024
Sample ID:	CCV3						
Cyanide		mg/L	0.25	0.25	100	90-110	12/05/2024

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Initial and Continuing Calibration Verification

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **RunNo.:** LB134007

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	**ICV**						
Field pH		pH	7.01	7	100	90-110	12/02/2024
Sample ID:	**CCV1**						
Field pH		pH	7.01	7	100	90-110	12/02/2024
Sample ID:	**CCV2**						
Field pH		pH	7	7	100	90-110	12/02/2024

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Initial and Continuing Calibration Blank Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **RunNo.:** LB133695

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: ICB							
Hexavalent Chromium	mg/L	< 0.0050	0.0050	U	0.0021	0.01	12/02/2024
Sample ID: CCB1							
Hexavalent Chromium	mg/L	< 0.0050	0.0050	U	0.0021	0.01	12/02/2024
Sample ID: CCB2							
Hexavalent Chromium	mg/L	< 0.0050	0.0050	U	0.0021	0.01	12/02/2024

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Initial and Continuing Calibration Blank Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **RunNo.:** LB133772

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: ICB1							
Cyanide	mg/L	< 0.0025	0.0025	U	0.00093	0.005	12/05/2024
Sample ID: CCB1							
Cyanide	mg/L	< 0.0025	0.0025	U	0.00093	0.005	12/05/2024
Sample ID: CCB2							
Cyanide	mg/L	< 0.0025	0.0025	U	0.00093	0.005	12/05/2024
Sample ID: CCB3							
Cyanide	mg/L	< 0.0025	0.0025	U	0.00093	0.005	12/05/2024

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Preparation Blank Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: LB133695BL							
Hexavalent Chromium	mg/L	< 0.0050	0.0050	U	0.002	0.01	12/02/2024
Sample ID: LB133715BL							
TSS	mg/L	< 2.0000	2.0000	U	1	4	12/03/2024
Sample ID: LB133806BL							
Non-Polar Material	mg/L	< 2.5000	2.5000	U	0.4	5.0	12/07/2024
Sample ID: PB165397BL							
Cyanide	mg/L	< 0.0025	0.0025	U	0.00093	0.005	12/05/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P4997-07

Client ID: 14B-(1-4)-COMPMS **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
Cyanide	mg/L	75-125	0.040		0.0045	J	0.04	1	89		12/05/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P4997-07

Client ID: 14B-(1-4)-COMPMSD **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
Cyanide	mg/L	75-125	0.040		0.0045	J	0.04	1	89		12/05/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P5051-04

Client ID: 14B-4MS **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
Non-Polar Material	mg/L	78-114	20.7		0.70	J	20.0	1	100		12/07/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P5051-04

Client ID: 14B-4MSD **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
Non-Polar Material	mg/L	78-114	20.4		0.70	J	20.0	1	98		12/07/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P5051-07

Client ID: 14B-(1-4)-COMPMS **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
Hexavalent Chromium	mg/L	90-111	0.98		0.0020	U	1.0	2	98		12/02/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P5051-07

Client ID: 14B-(1-4)-COMPMSD **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
Hexavalent Chromium	mg/L	90-111	0.99		0.0020	U	1.0	2	99		12/02/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P5068-04

Client ID: 14B-4MS **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
Non-Polar Material	mg/L	78-114	20.4		0.40	J	20.0	1	100		12/07/2024

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Matrix Spike Summary

Client: New York City DEP of Environmental Protection/BWS **SDG No.:** P5051

Project: Industrial Wastewater Discharge Permit - Fall 2024 **Sample ID:** P5068-04

Client ID: 14B-4MSD **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
Non-Polar Material	mg/L	78-114	22.5		0.40	J	20.0	1	111		12/07/2024

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

Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P4997-07
Client ID: 14B-(1-4)-COMPDUP
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
Cyanide	mg/L	+/-20	0.0045	J	0.0042	J	1	7		12/05/2024

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Fax : 908 789 8922

Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P4997-07
Client ID: 14B-(1-4)-COMPMSD
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
Cyanide	mg/L	+/-20	0.040		0.040		1	0		12/05/2024

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Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P5051-04
Client ID: 14B-4DUP
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
TSS	mg/L	+/-5	4840		4850		1	0.21		12/03/2024
Field pH	pH	+/-20	6.71		6.73		1	0.3		12/02/2024

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Fax : 908 789 8922

Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P5051-04
Client ID: 14B-4MSD
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
Non-Polar Material	mg/L	+/-18	20.7		20.4		1	1.46		12/07/2024

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Fax : 908 789 8922

Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P5051-07
Client ID: 14B-(1-4)-COMPDUP
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
Hexavalent Chromium	mg/L	+/-20	0.0020	U	0.0020	U	1	0		12/02/2024

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Fax : 908 789 8922

Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P5051-07
Client ID: 14B-(1-4)-COMPMSD
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
Hexavalent Chromium	mg/L	+/-20	0.98		0.99		2	0.61		12/02/2024

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Fax : 908 789 8922

Duplicate Sample Summary

Client: New York City DEP of Environmental Protection/BWS
SDG No.: P5051
Project: Industrial Wastewater Discharge Permit - Fall 2024
Sample ID: P5068-04
Client ID: 14B-4MSD
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
Non-Polar Material	mg/L	+/-18	20.4		22.5		1	9.79		12/07/2024

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Fax : 908 789 8922

Laboratory Control Sample Summary

Client:	New York City DEP of Environmental Protection/BWS	**SDG No.:**	P5051
Project:	Industrial Wastewater Discharge Permit - Fall 2024	**Run No.:**	LB133695

Analyte	Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID LB133695BS								
Hexavalent Chromium	**mg/L**	**0.5**	**0.51**		**102**	**1**	**90-111**	**12/02/2024**

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Fax : 908 789 8922

Laboratory Control Sample Summary

Client:	New York City DEP of Environmental Protection/BWS	**SDG No.:**	P5051
Project:	Industrial Wastewater Discharge Permit - Fall 2024	**Run No.:**	LB133715

Analyte	Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID **LB133715BS**								
TSS	**mg/L**	**550**	**536**		**98**	**1**	**90-110**	**12/03/2024**

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Fax : 908 789 8922

Laboratory Control Sample Summary

Client:	New York City DEP of Environmental Protection/BWS	**SDG No.:**	P5051
Project:	Industrial Wastewater Discharge Permit - Fall 2024	**Run No.:**	LB133806

Analyte	Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID LB133806BS								
Non-Polar Material	**mg/L**	**20.0**	**16.6**		**83**	**1**	**78-114**	**12/07/2024**

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Fax : 908 789 8922

Laboratory Control Sample Summary

Client:	New York City DEP of Environmental Protection/BWS	**SDG No.:**	P5051
Project:	Industrial Wastewater Discharge Permit - Fall 2024	**Run No.:**	LB133772

Analyte	Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID **PB165397BS**								
Cyanide	mg/L	0.1	0.095		95	1	85-115	12/05/2024

Alliance
TECHNICAL GROUP

RAW DATA

Reviewed By:Iwona
On:12/3/2024 9:51:15 AM
Inst Id :SPECTROPHOTOME

Analytical Summary Report

Analysis Method: ~~SM3500-Cr B~~

Parameter: ~~Hexavalent Chromium~~

Run Number: ~~LB133695~~

ANALYST: rubina

SUPERVISOR REVIEW BY: Iwona

pH Meter ID: WC pH Meter-1

Reagent/Standard	Lot/Log #
Calibration Std. hexchrome 0.1 ppm	WP110918
Calibration Std. hexchrome 0.05 ppm	WP110917
calibration std. hexchrome 0.01 ppm	WP110915
calibration std. hexchrome 0 ppm	WP110913
hexavalent chromium color reagent	WP110922
0.2N SULFURIC ACID	WP109325
Calibration Std Hexachrome 0.025 ppm	WP110916
Hexavalent Chromium ICV-LCS Std	WP110921
Calibration and CCV std HexChrome 0.5PPM	WP110919
Calibration std HexChrome 1.0PPM	WP110920

Intercept: 0.0003 **Slope:** 0.7817 **Regression:** 0.999998

Seq	Lab ID	True Value (mg/l)	DF	Initial Vol (ml)	Final Vol (ml)	pH HN03	pH H2SO4	Absorb.at 540nm		Absorbance Difference	Result (mg/L)	%D	Anal Date	Anal Time
								Backgrnd	Color					
1	CAL1	0	1	100	100		1.78	0.000	0.000	0.000	-0.00		12/02/2024	16:40
2	CAL2	0.01	1	100	100		1.90	0.000	0.009	0.009	0.011	10	12/02/2024	16:41
3	CAL3	0.025	1	100	100		1.87	0.000	0.019	0.019	0.023	-8	12/02/2024	16:42
4	CAL4	0.05	1	100	100		1.89	0.000	0.039	0.039	0.049	-2	12/02/2024	16:43
5	CAL5	0.1	1	100	100		1.88	0.000	0.079	0.079	0.100	0	12/02/2024	16:44
6	CAL6	0.5	1	100	100		1.88	0.000	0.391	0.391	0.499	-0.2	12/02/2024	16:45
7	CAL7	1	1	100	100		1.85	0.000	0.782	0.782	1	0	12/02/2024	16:46

Analytical Summary Report

Analysis Method: SM3500-Cr B
ANALYST: rubina
Parameter: Hexavalent Chromium
SUPERVISOR REVIEW BY: Iwona
Run Number: LB133695
pH Meter ID: WC pH Meter-1

Seq	Lab ID	True Value	DF	Initial Vol (ml/gm)	Final Vol (ml)	pH HN03	pH H2SO4	Absorb.at540nm		Absorbance Difference	Intermediate Result (mg/L)	Anal Date	Anal Time
								Backgrnd	Color				
1	ICV	0.5	1	100	100		1.91	0.000	0.390	0.390	0.499	12/02/2024	16:47
2	ICB		1	100	100		1.74	0.000	0.000	0.000	0.000	12/02/2024	16:48
3	CCV1	0.5	1	100	100		1.92	0.000	0.392	0.392	0.501	12/02/2024	16:49
4	CCB1		1	100	100		1.79	0.000	0.000	0.000	0.000	12/02/2024	16:50
5	RL Check	0.01	1	100	100		1.91	0.000	0.009	0.009	0.011	12/02/2024	16:51
6	LB133695BL		1	100	100		1.77	0.000	0.000	0.000	0.000	12/02/2024	16:52
7	LB133695BS	0.5	1	100	100		1.93	0.000	0.400	0.400	0.511	12/02/2024	16:53
8	P5051-07		1	100	100		2.06	0.000	0.000	0.000	0.000	12/02/2024	16:54
9	P5051-07DU		1	100	100		2.10	0.000	0.000	0.000	0.000	12/02/2024	16:55
10	P5051-07MS	1	2	100	100		2.10	0.000	0.383	0.383	0.490	12/02/2024	16:56
11	P5051-07MS	1	2	100	100		2.14	0.000	0.386	0.386	0.493	12/02/2024	16:57
12	CCV2	0.5	1	100	100		1.92	0.000	0.391	0.391	0.500	12/02/2024	16:58
13	CCB2		1	100	100		1.77	0.000	0.000	0.000	0.000	12/02/2024	16:59

WORKLIST(Hardcopy Internal Chain)

Lb133695

WorkList Name : HEX-12*-2 **WorkList ID :** 185902 **Department :** Wet-Chemistry **Date :** 12-02-2024 13:31:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5051-07	14B-(1-4)-COMP	Water	Hexavalent Chromium	Ammonium sulfate buffer	NEWY17	M11	12/02/2024	SM3500-Cr B

Date/Time 12/02/2024 14:25

Raw Sample Received by: RM CWS

Raw Sample Relinquished by: [signature]

Date/Time 12/02/2024 16:10

Raw Sample Received by: [signature]

Raw Sample Relinquished by: RM CWS

TOTAL SUSPENDED SOLIDS - SM2540D

SUPERVISOR: jignesh
ANALYST: Niha
Date: 12/02/2024
Run Number: LB133715
BalanceID: WC SC-6
OvenID: WC OVEN-1
FilterID: 17416528
ThermometerID: WET OVEN#1

TEMP1 IN:	103 °C	12/02/2024 11:00	**TEMP1 OUT:**	104 °C	12/02/2024 12:00
TEMP2 IN:	103 °C	12/02/2024 12:30	**TEMP2 OUT:**	104 °C	12/02/2024 13:30
TEMP3 IN:	103 °C	12/03/2024 09:40	**TEMP3 OUT:**	104 °C	12/03/2024 11:10
TEMP4 IN:	104 °C	12/03/2024 11:40	**TEMP4 OUT:**	104 °C	12/03/2024 13:10

Dish #	Lab ID	Client ID	Empty Dish Weight (g)	Final Empty Dish Weight (g)	Sample Volume (ml)	1st Empty Dish+Sample weight after 1.5hr drying @103-@105°C (g)	2nd Empty Dish+Sample weight after 1.5hr drying @103-@105°C (g)	Final Empty Dish+Sample weight after 1.5hr drying @103-@105°C (g)	Weight (g)	Result mg/L
1	LB133715BL	LB133715BL	1.4123	1.4123	100	1.4123	1.4123	1.4123	0.0000	0
2	LB133715BS	LB133715BS	1.3908	1.3908	100	1.4444	1.4444	1.4444	0.0536	536
3	P5020-02	COMP	1.3803	1.3803	100	1.4009	1.4009	1.4009	0.0206	206
4	P5044-01	OUTFALL-DSN-001	1.3950	1.3950	1000	1.4056	1.4056	1.4056	0.0106	10.6
5	P5044-02	OUTFALL-DSN-002	1.4001	1.4001	1000	1.4359	1.4359	1.4359	0.0358	35.8
6	P5051-01	14B-1	1.3979	1.3979	10	1.4390	1.4390	1.4390	0.0411	4110
7	P5051-02	14B-2	1.3864	1.3864	10	1.4229	1.4229	1.4229	0.0365	3650
8	P5051-03	14B-3	1.3551	1.3551	10	1.3922	1.3922	1.3922	0.0371	3710
9	P5051-04	14B-4	1.3998	1.3998	10	1.4482	1.4482	1.4482	0.0484	4840
10	P5051-04DUP	14B-4DUP	1.3707	1.3707	10	1.4192	1.4192	1.4192	0.0485	4850

A = Sample Volume (ml)
B = Final Empty Dish Weight (g)
C = Final Empty Dish + Sample weight after 1.5 hr drying @105°C(g)
D = Weight (g)

Weight (g) = C - B

Result mg/L = $\frac{D}{A} * 1000 * 1000$

LB133715

WORKLIST(Hardcopy Internal Chain)

WorkList Name : TSS-12022024 **WorkList ID :** 185891 **Department :** Wet-Chemistry **Date :** 12-02-2024 10:24:18

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5020-02	COMP	Water	TSS	Cool 4 deg C	ARAM01	M11	11/27/2024	SM2540 D
P5044-01	OUTFALL-DSN-001	Water	TSS	Cool 4 deg C	TRIS02	L41	11/27/2024	SM2540 D
P5044-02	OUTFALL-DSN-002	Water	TSS	Cool 4 deg C	TRIS02	L41	11/27/2024	SM2540 D
P5051-01	14B-1	Water	TSS	Cool 4 deg C	NEWY17	M11	12/02/2024	SM2540 D
P5051-02	14B-2	Water	TSS	Cool 4 deg C	NEWY17	M11	12/02/2024	SM2540 D
P5051-03	14B-3	Water	TSS	Cool 4 deg C	NEWY17	M11	12/02/2024	SM2540 D
P5051-04	14B-4	Water	TSS	Cool 4 deg C	NEWY17	M11	12/02/2024	SM2540 D

Date/Time 12.03.2024, 09:00
Raw Sample Received by: NF(WC)
Raw Sample Relinquished by:

Date/Time 12.03.2024, 11:00
Raw Sample Received by:
Raw Sample Relinquished by: NF(WC)

LB

Test results Aquakem 7.2AQ1 Page: 1

CHEMTECH CONSULTING GROUP INC
284 Sheffield Street, Mountainside, NJ 07092

Reviewed by : NF Instrument ID : Konelab

12/5/2024 13:51

Test: Total CN

Sample Id	Result	Dil. 1 +	Response	Errors
ICV1	96.596	0.0	0.072	
ICB1	-0.059	0.0	0.002	
CCV1	241.417	0.0	0.176	
CCB1	-0.437	0.0	0.002	
RL CHECK	3.851	0.0	0.005	
PB165397BL	-0.454	0.0	0.002	
PB165397BS	94.647	0.0	0.070	
MIDPB165397	236.841	0.0	0.173	94.4 % (90 - 110) NF
P4997-07	4.460	0.0	0.005	
P4997-07DUP	4.206	0.0	0.005	
P4997-07MS	40.359	0.0	0.031	12.05.2024
P4997-07MSD	40.152	0.0	0.031	
P5018-07	4.183	0.0	0.005	
CCV2	254.620	0.0	0.186	
CCB2	-0.031	0.0	0.002	
P5051-07	4.099	0.0	0.005	
P5068-07	4.241	0.0	0.005	
CCV3	247.995	0.0	0.181	
CCB3	-0.277	0.0	0.002	

N	19
Mean	67.179
SD	99.0497
CV%	147.44

Reviewed By:
On:
Inst Id :Konelab 20
LB :LB133772

Aquakem v. 7.2AQ1
Results from time period:
Thu Dec 05 09:50:39 2024
Thu Dec 05 13:47:30 2024

Sample Id	Sam/Ctr/cA	Test short r	Test type	Result	Result unit	Result date and time	Stat
0.0PPBCN	A	Total CN	P	-0.6135	µg/l	12/5/2024 12:39:42	
5.0PPBCN	A	Total CN	P	4.524	µg/l	12/5/2024 12:39:43	
10PPBCN	A	Total CN	P	9.5977	µg/l	12/5/2024 12:39:44	
50PPBCN	A	Total CN	P	50.9497	µg/l	12/5/2024 12:39:45	
100PPBCN	A	Total CN	P	100.7873	µg/l	12/5/2024 12:39:46	
250PPBCN	A	Total CN	P	249.9889	µg/l	12/5/2024 12:39:47	
500PPBCN	A	Total CN	P	499.766	µg/l	12/5/2024 12:39:48	
ICV1	S	Total CN	P	96.5959	µg/l	12/5/2024 13:13:02	
ICB1	S	Total CN	P	-0.0593	µg/l	12/5/2024 13:13:05	
CCV1	S	Total CN	P	241.4175	µg/l	12/5/2024 13:13:07	
CCB1	S	Total CN	P	-0.4366	µg/l	12/5/2024 13:13:08	
RL CHECK	S	Total CN	P	3.8508	µg/l	12/5/2024 13:13:10	
PB165397BL	S	Total CN	P	-0.4536	µg/l	12/5/2024 13:13:12	
PB165397BS	S	Total CN	P	94.6471	µg/l	12/5/2024 13:20:35	
MIDPB165397	S	Total CN	P	236.8407	µg/l	12/5/2024 13:20:37	
P4997-07	S	Total CN	P	4.4599	µg/l	12/5/2024 13:20:38	
P4997-07DUP	S	Total CN	P	4.2058	µg/l	12/5/2024 13:20:39	
P4997-07MS	S	Total CN	P	40.3589	µg/l	12/5/2024 13:20:40	
P4997-07MSD	S	Total CN	P	40.152	µg/l	12/5/2024 13:20:41	
P5018-07	S	Total CN	P	4.1833	µg/l	12/5/2024 13:25:20	
CCV2	S	Total CN	P	254.6195	µg/l	12/5/2024 13:25:22	
CCB2	S	Total CN	P	-0.0311	µg/l	12/5/2024 13:25:23	
P5051-07	S	Total CN	P	4.0991	µg/l	12/5/2024 13:47:24	
P5068-07	S	Total CN	P	4.2413	µg/l	12/5/2024 13:47:27	
CCV3	S	Total CN	P	247.9954	µg/l	12/5/2024 13:47:29	
CCB3	S	Total CN	P	-0.2766	µg/l	12/5/2024 13:47:30	

Reviewed By:
On:
Inst Id :Konelab 20
LB :LB133772

Calibration results Aquakem 7.2AQ1 Page: 1

CHEMTECH CONSULTING GROUP INC
284 Sheffield Street, Mountainside, NJ 07092

Reviewed by : NF Instrument ID : Konelab

12/5/2024 12:40

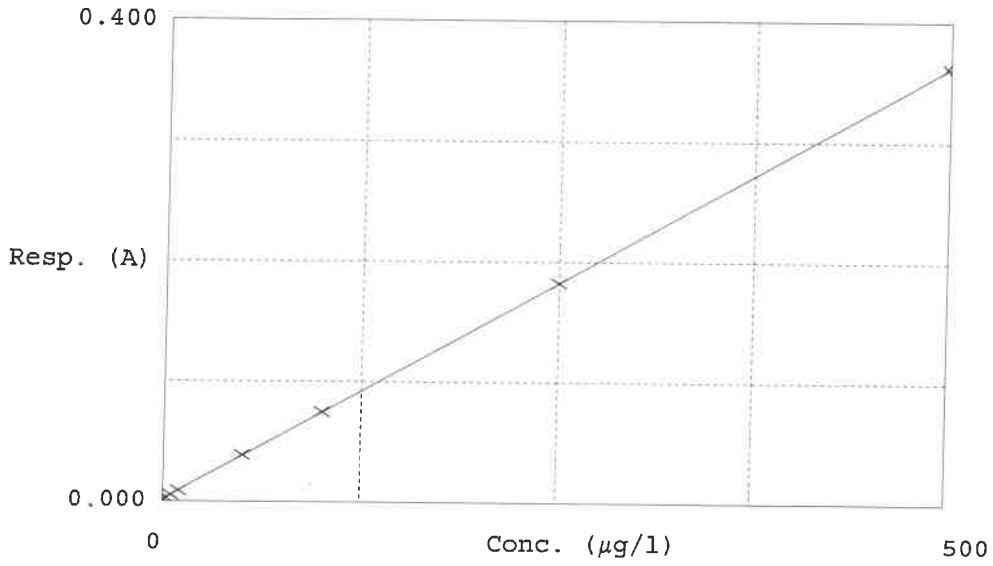
Test Total CN

Accepted 12/5/2024 12:40

Factor 1388
Bias 0.002

Coeff. of det. 0.999989

Errors



	Calibrator	Response	Calc. con.	Conc.	Errors
1	0.0PPBCN	0.002	-0.6135	0.0000	
2	5.0PPBCN	0.005	4.5240	5.0000	-9.5
3	10PPBCN	0.009	9.5977	10.0000	-4.0
4	50PPBCN	0.039	50.9497	50.0000	1.9
5	100PPBCN	0.075	100.7873	100.0000	0.8
6	250PPBCN	0.182	249.9889	250.0000	0.0
7	500PPBCN	0.362	499.7660	500.0000	0.0

Re

NF
12.05.2024

Extraction and Analytical Summary Report

Analysis Method: 1664A
Test: Non-Polar Material
Run Number: LB133806
Analysis Date: 12/07/2024
BalanceID: WC SC-6
OvenID: EXT OVEN-3

ANALYST: jignesh
REVIEWED BY: Iwona
Extraction Date: 12/07/2024
Extration IN Time: 08:11
Extration OUT Time: 09:25
Thermometer ID: EXT OVEN#3

Dish #	Lab ID	Client ID	Matrix	pH	Sample Vol (ml)	Final Volume (ml)	Empty Dish Weight (g)	Final Empty Dish Weight(g)	Silica Gel Weight(g)	Weight After Drying(g)	Final Weight After Drying(g)	Change Weight (g)	Result in ppm
1	LB133806BL	LB133806BL	WATER	1.3	1000	100	3.0563	3.0563	3.02	3.0564	3.0564	0.0001	0.1
2	LB133806BS	LB133806BS	WATER	1.3	1000	100	3.1856	3.1856	3.01	3.2022	3.2022	0.0166	16.6
3	P5051-01	14B-1	WATER	1.6	1000	100	3.0830	3.0830	3.03	3.0837	3.0837	0.0007	0.7
4	P5051-02	14B-2	WATER	1.6	1000	100	3.0347	3.0347	3.02	3.0350	3.0350	0.0003	0.3
5	P5051-03	14B-3	WATER	1.6	1000	100	3.1093	3.1093	3.04	3.1100	3.1100	0.0007	0.7
6	P5051-04	14B-4	WATER	1.6	1000	100	2.8563	2.8563	3.03	2.8570	2.8570	0.0007	0.7
7	P5051-05	P5051-04MS	WATER	1.6	1000	100	2.7563	2.7563	3.04	2.7770	2.7770	0.0207	20.7
8	P5051-06	P5051-04MSD	WATER	1.6	1000	100	2.8036	2.8036	3.03	2.8240	2.8240	0.0204	20.4
9	P5068-01	14B-1	WATER	1.6	1000	100	3.0081	3.0081	3.04	3.0085	3.0085	0.0004	0.4
10	P5068-02	14B-2	WATER	1.6	1000	100	3.0003	3.0003	3.03	3.0007	3.0007	0.0004	0.4
11	P5068-03	14B-3	WATER	1.6	1000	100	3.1363	3.1363	3.04	3.1366	3.1366	0.0003	0.3
12	P5068-04	14B-4	WATER	1.6	1000	100	3.0772	3.0772	3.03	3.0776	3.0776	0.0004	0.4
13	P5068-05	P5068-04MS	WATER	1.6	1000	100	2.8966	2.8966	3.04	2.9170	2.9170	0.0204	20.4
14	P5068-06	P5068-04MSD	WATER	1.6	1000	100	2.9306	2.9306	3.03	2.9531	2.9531	0.0225	22.5

QC Batch# LB133806 **Test:** Non-Polar Material **Analysis Date:** 12/07/2024

Chemicals Used:

Chemical Name	Chemical Lot #
HEXANE	W3153
pH Paper 0-14	M6069
Sodium Sulfate	EP2570
1:1 HCL	WP110826
Silica Gel	W3079
Sand	NA

Standards Used:

Standard Name	Amount Used	Standard Lot #
LCSW	5.00 ML	WP100827
LCSWD	NA	NA
MS/MSD	5.00 ML	WP100828

BALANCE CALIBRATION / OVEN Dessicator Data

Analytical Balance ID # : WC SC-6

Before Analysis

0.0020 gram Balance: 0.0019 **(0.0018-0.0022)**
1.0000 gram Balance: 1.0003 **(0.9950-1.0050)**
Bal Check Time: 08:30

In OVEN TEMP1 : 70 °C **Dessicator Time In1 :** 11:01
In Time1: 10:10
Out OVEN TEMP1: 70 °C **Dessicator Time Out1:** 11:37
Out Time1: 11:00

After Analysis

0.0020 gram Balance: 0.0019 **(0.0018-0.0022)**
1.0000 gram Balance: 1.0004 **(0.9950-1.0050)**
Bal Check Time: 13:40

In OVEN TEMP2 : 71 °C **Dessicator Time In2 :** 13:01
In Time2: 12:20
Out OVEN TEMP2: 71 °C **Dessicator Time Out2:** 13:37
Out Time2: 13:00

WORKLIST(Hardcopy Internal Chain)

WorkList Name : non poplar p5068 **WorkList ID :** 186088 **Department :** Wet-Chemistry **Date :** 12-07-2024 07:55:08

NB 138806

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5051-01 D	14B-1	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5051-02 D	14B-2	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5051-03 D	14B-3	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5051-04 D	14B-4	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5051-05	P5051-04MS	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5051-06	P5051-04MSD	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5068-01 D	14B-1	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	M11	12/02/2024	1664A
P5068-02 D	14B-2	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	L61	12/03/2024	1664A
P5068-03 D	14B-3	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	L61	12/03/2024	1664A
P5068-04 D	14B-4	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	L61	12/03/2024	1664A
P5068-05	P5068-04MS	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	L61	12/03/2024	1664A
P5068-06	P5068-04MSD	Water	Non-Polar Material	Conc H2SO4 to pH < 2	NEWY17	L61	12/03/2024	1664A

Date/Time 12/07/24 08:00

Raw Sample Received by: JB (WC)

Raw Sample Relinquished by: RM (WC)

Date/Time 12/07/24 13:30

Raw Sample Received by: RM (WC)

Raw Sample Relinquished by: JB (WC)

Alliance TECHNICAL GROUP

Water Cyanide Preparation Sheet

PB165397

SOP ID : MSM4500-CN C,E-Cyanide-12

SDG No : N/A

Matrix : WATER

Pippete ID : WC

Balance ID : N/A

Hood ID : HOOD#1

Block ID : MC-1,MC-2

Weigh By : N/A

Start Digest Date: 12/05/2024 **Time :** 09:00 **Temp :** 123 °C

End Digest Date: 12/05/2024 **Time :** 10:30 **Temp :** 126 °C

Digestion tube ID : M5595

Filter paper ID : N/A

pH Meter ID : N/A

Block Thermometer ID : WC CYANIDE

Prep Technician Signature:

Supervisor Signature: 12

Standared Name	MLS USED	STD REF. # FROM LOG
LCSW	1.0ML	WP109549
MS/MSD SPIKE SOL.	0.4ML	WP110899
PBW	50.0ML	W3112
RL CHECK	50.0ML	WP110956
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
0.25N NaOH	50.0ML	WP108640
50% v/v H2SO4	5.0ML	WP110391
51% w/v MgCL2	2.0ML	WP110390
pH Paper 0-14	N/A	W3140
Nitrate/Nitrite Strip	N/A	W3101
Lead Acetate strip	N/A	W3134
KI-starch paper	N/A	W3155
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
S0	S0	N/A	N/A
S5.0	S5.0	N/A	N/A
S10.0	S10.0	N/A	N/A
S100.0	S100.0	N/A	N/A
S250.0	S250.0	N/A	N/A
S500.0	S500.0	N/A	N/A
ICV	ICV	0.5ML	W3011
ICB	ICB	N/A	N/A
CCV	CCV	N/A	N/A
CCB	CCB	N/A	N/A
Midrange	Midrange	2.5ML	WP110899
HIGHSTD	HIGHSTD	N/A	N/A
LOWSTD	LOWSTD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12-05-2024, 10:40	[illegible]	NF (WC)
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Cyanide Preparation Sheet

PB165397

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/ Nitrite	Comment	Prep Pos
P4997-07	14B-(1-4)-COMP	50	50	>12	Negative	Negative	Negative	N/A	N/A
P4997-07DUP	14B-(1-4)-COMPDUP	50	50	>12	Negative	Negative	Negative	N/A	N/A
P4997-07MS	14B-(1-4)-COMPMS	50	50	>12	Negative	Negative	Negative	N/A	N/A
P4997-07MSD	14B-(1-4)-COMPMSD	50	50	>12	Negative	Negative	Negative	N/A	N/A
P5018-07	14B-(1-4)-COMP	50	50	>12	Negative	Negative	Negative	N/A	N/A
P5051-07	14B-(1-4)-COMP	50	50	>12	Negative	Negative	Negative	N/A	N/A
P5068-07	14B-(1-4)-COMP	50	50	>12	Negative	Negative	Negative	N/A	N/A
PB165397BL	PB165397BL	50	50	>12	Negative	Negative	Negative	N/A	N/A
PB165397BS	LCS397	50	50	>12	Negative	Negative	Negative	N/A	N/A

WORKLIST(Hardcopy Internal Chain)

WorkList Name : cn p5051 water **WorkList ID :** 185936 **Department :** Distillation **Date :** 12-04-2024 07:45:06

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4997-07 A	14B-(1-4)-COMP	Water	Cyanide	1:1 NaOH to pH >12	NEWY17	L41	11/25/2024	SM4500-CN C
P5018-07 B	14B-(1-4)-COMP	Water	Cyanide	1:1 NaOH to pH >12	NEWY17	L51	11/26/2024	SM4500-CN C
P5051-07 A	14B-(1-4)-COMP	Water	Cyanide	1:1 NaOH to pH >12	NEWY17	M11	12/02/2024	SM4500-CN C
P5068-07 A	14B-(1-4)-COMP	Water	Cyanide	1:1 NaOH to pH >12	NEWY17	L61	12/03/2024	SM4500-CN C

Date/Time 12. 05 2024 , 08:00
Raw Sample Received by: [signature]
Raw Sample Relinquished by: [signature]

Date/Time 12 05 2024 , 10:00
Raw Sample Received by: [signature]
Raw Sample Relinquished by: [signature]

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Fax : 908 789 8922

Instrument ID: SPECTROPHOTOMETER-1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133695

Review By	rubina	Review On	12/2/2024 5:21:05 PM
Supervise By	Iwona	Supervise On	12/3/2024 9:51:15 AM
SubDirectory	LB133695	Test	Hexavalent Chromium

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	WP110918,WP110917,WP110915,WP110913,WP110922,WP109325,WP110916,WP110921,WP110919,WP110920

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	CAL1	CAL1	CAL	12/02/24 16:40		rubina	OK
2	CAL2	CAL2	CAL	12/02/24 16:41		rubina	OK
3	CAL3	CAL3	CAL	12/02/24 16:42		rubina	OK
4	CAL4	CAL4	CAL	12/02/24 16:43		rubina	OK
5	CAL5	CAL5	CAL	12/02/24 16:44		rubina	OK
6	CAL6	CAL6	CAL	12/02/24 16:45		rubina	OK
7	CAL7	CAL7	CAL	12/02/24 16:46		rubina	OK
8	ICV	ICV	ICV	12/02/24 16:47		rubina	OK
9	ICB	ICB	ICB	12/02/24 16:48		rubina	OK
10	CCV1	CCV1	CCV	12/02/24 16:49		rubina	OK
11	CCB1	CCB1	CCB	12/02/24 16:50		rubina	OK
12	RL Check	RL Check	SAM	12/02/24 16:51		rubina	OK
13	LB133695BL	LB133695BL	MB	12/02/24 16:52		rubina	OK
14	LB133695BS	LB133695BS	LCS	12/02/24 16:53		rubina	OK
15	P5051-07	14B-(1-4)-COMP	SAM	12/02/24 16:54		rubina	OK
16	P5051-07DUP	14B-(1-4)-COMPDUP	DUP	12/02/24 16:55		rubina	OK
17	P5051-07MS	14B-(1-4)-COMPMS	MS	12/02/24 16:56	1ML WP108658+99.0ML SAMPLE	rubina	OK
18	P5051-07MSD	14B-(1-4)-COMPMSD	MSD	12/02/24 16:57	1ML WP108658+99.0ML SAMPLE	rubina	OK

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Instrument ID: SPECTROPHOTOMETER-1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133695

Review By	rubina	Review On	12/2/2024 5:21:05 PM
Supervise By	Iwona	Supervise On	12/3/2024 9:51:15 AM
SubDirectory	LB133695	Test	Hexavalent Chromium

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	WP110918,WP110917,WP110915,WP110913,WP110922,WP109325,WP110916,WP110921,WP110919,WP110920

19	CCV2	CCV2	CCV	12/02/24 16:58		rubina	OK
20	CCB2	CCB2	CCB	12/02/24 16:59		rubina	OK

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Instrument ID: WC SC-3

Daily Analysis Runlog For Sequence/QCBatch ID # LB133715

Review By	Niha	Review On	12/3/2024 5:19:11 PM
Supervise By	jignesh	Supervise On	12/3/2024 5:23:21 PM
SubDirectory	LB133715	Test	TSS

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	N/A

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	LB133715BL	LB133715BL	MB	12/03/24 09:40		Niha	OK
2	LB133715BS	LB133715BS	LCS	12/03/24 09:40		Niha	OK
3	P5020-02	COMP	SAM	12/03/24 09:40		Niha	OK
4	P5044-01	OUTFALL-DSN-001	SAM	12/03/24 09:40		Niha	OK
5	P5044-02	OUTFALL-DSN-002	SAM	12/03/24 09:40		Niha	OK
6	P5051-01	14B-1	SAM	12/03/24 09:40		Niha	OK
7	P5051-02	14B-2	SAM	12/03/24 09:40		Niha	OK
8	P5051-03	14B-3	SAM	12/03/24 09:40		Niha	OK
9	P5051-04	14B-4	SAM	12/03/24 09:40		Niha	OK
10	P5051-04DUP	14B-4DUP	DUP	12/03/24 09:40		Niha	OK

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Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QCBatch ID # LB133772

Review By	Niha	Review On	12/6/2024 4:54:44 PM
Supervise By		Supervise On	
SubDirectory	LB133772	Test	Cyanide

STD. NAME	STD REF.#
ICAL Standard	WP110951,WP110952,WP110953,WP110954,WP110955,WP110956,WP110957
ICV Standard	W3011
CCV Standard	WP110952
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	WP109549
Chk Standard	WP109068,WP110103,WP110958

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	0.0PPBCN	0.0PPBCN	CAL1	12/05/24 12:39		Niha	OK
2	5.0PPBCN	5.0PPBCN	CAL2	12/05/24 12:39		Niha	OK
3	10PPBCN	10PPBCN	CAL3	12/05/24 12:39		Niha	OK
4	50PPBCN	50PPBCN	CAL4	12/05/24 12:39		Niha	OK
5	100PPBCN	100PPBCN	CAL5	12/05/24 12:39		Niha	OK
6	250PPBCN	250PPBCN	CAL6	12/05/24 12:39		Niha	OK
7	500PPBCN	500PPBCN	CAL7	12/05/24 12:39		Niha	OK
8	ICV1	ICV1	ICV	12/05/24 13:13		Niha	OK
9	ICB1	ICB1	ICB	12/05/24 13:13		Niha	OK
10	CCV1	CCV1	CCV	12/05/24 13:13		Niha	OK
11	CCB1	CCB1	CCB	12/05/24 13:13		Niha	OK
12	RL	RL	SAM	12/05/24 13:13		Niha	OK
13	PB165397BL	PB165397BL	MB	12/05/24 13:13		Niha	OK
14	PB165397BS	PB165397BS	LCS	12/05/24 13:20		Niha	OK
15	MIDPB165397	MIDPB165397	SAM	12/05/24 13:20		Niha	OK
16	P4997-07	14B-(1-4)-COMP	SAM	12/05/24 13:20		Niha	OK
17	P4997-07DUP	14B-(1-4)-COMPDUP	DUP	12/05/24 13:20		Niha	OK
18	P4997-07MS	14B-(1-4)-COMPMS	MS	12/05/24 13:20		Niha	OK

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Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QCBatch ID # LB133772

Review By	Niha	Review On	12/6/2024 4:54:44 PM
Supervise By		Supervise On	
SubDirectory	LB133772	Test	Cyanide

STD. NAME	STD REF.#
ICAL Standard	WP110951,WP110952,WP110953,WP110954,WP110955,WP110956,WP110957
ICV Standard	W3011
CCV Standard	WP110952
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	WP109549
Chk Standard	WP109068,WP110103,WP110958

19	P4997-07MSD	14B-(1-4)-COMPMSD	MSD	12/05/24 13:20		Niha	OK
20	P5018-07	14B-(1-4)-COMP	SAM	12/05/24 13:25		Niha	OK
21	CCV2	CCV2	CCV	12/05/24 13:25		Niha	OK
22	CCB2	CCB2	CCB	12/05/24 13:25		Niha	OK
23	P5051-07	14B-(1-4)-COMP	SAM	12/05/24 13:47		Niha	OK
24	P5068-07	14B-(1-4)-COMP	SAM	12/05/24 13:47		Niha	OK
25	CCV3	CCV3	CCV	12/05/24 13:47		Niha	OK
26	CCB3	CCB3	CCB	12/05/24 13:47		Niha	OK

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Instrument ID:

Daily Analysis Runlog For Sequence/QCBatch ID

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard	
ICV Standard	
CCV Standard	
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status

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Instrument ID: WC SC-3

Daily Analysis Runlog For Sequence/QCBatch ID # LB133806

Review By	jignesh	Review On	12/7/2024 9:20:02 AM
Supervise By	Iwona	Supervise On	12/19/2024 11:58:29 AM
SubDirectory	LB133806	Test	Non-Polar Material

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	W3153,M6069,EP2570,WP110826,W3079,NA,WP100827,NA,WP100828

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	LB133806BL	LB133806BL	MB	12/07/24 10:10		jignesh	OK
2	LB133806BS	LB133806BS	LCS	12/07/24 10:10		jignesh	OK
3	P5051-01	14B-1	SAM	12/07/24 10:10		jignesh	OK
4	P5051-02	14B-2	SAM	12/07/24 10:10		jignesh	OK
5	P5051-03	14B-3	SAM	12/07/24 10:10		jignesh	OK
6	P5051-04	14B-4	SAM	12/07/24 10:10		jignesh	OK
7	P5051-05	P5051-04MS	MS	12/07/24 10:10		jignesh	OK
8	P5051-06	P5051-04MSD	MSD	12/07/24 10:10		jignesh	OK
9	P5068-01	14B-1	SAM	12/07/24 10:10		jignesh	OK
10	P5068-02	14B-2	SAM	12/07/24 10:10		jignesh	OK
11	P5068-03	14B-3	SAM	12/07/24 10:10		jignesh	OK
12	P5068-04	14B-4	SAM	12/07/24 10:10		jignesh	OK
13	P5068-05	P5068-04MS	MS	12/07/24 10:10		jignesh	OK
14	P5068-06	P5068-04MSD	MSD	12/07/24 10:10		jignesh	OK

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Instrument ID: WC PH METER-1

Daily Analysis Runlog For Sequence/QCBatch ID # LB134007

Review By	Ayul	Review On	12/19/2024 11:22:52 AM
Supervise By	amarnath	Supervise On	12/19/2024 11:29:56 AM
SubDirectory	LB134007	Test	Field pH

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	W3107,W3071,W3094,W3093,W3071,W3071

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	CAL2	CAL2	CAL	12/02/24 07:10		Ayul	OK
2	CAL1	CAL1	CAL	12/02/24 07:13		Ayul	OK
3	CAL3	CAL3	CAL	12/02/24 07:18		Ayul	OK
4	ICV	ICV	ICV	12/02/24 07:23		Ayul	OK
5	CCV1	CCV1	CCV	12/02/24 07:31		Ayul	OK
6	P5051-01	14B-1	SAM	12/02/24 07:38		Ayul	OK
7	P5051-02	14B-2	SAM	12/02/24 08:38		Ayul	OK
8	P5051-03	14B-3	SAM	12/02/24 09:39		Ayul	OK
9	P5051-04	14B-4	SAM	12/02/24 10:38		Ayul	OK
10	P5051-04DUP	14B-4DUP	DUP	12/02/24 10:45		Ayul	OK
11	CCV2	CCV2	CCV	12/02/24 10:52		Ayul	OK

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Fax : 908 789 8922

Instrument ID: THERMOMETER

Daily Analysis Runlog For Sequence/QCBatch ID # LB134008

Review By	Ayul	Review On	12/19/2024 11:26:33 AM
Supervise By	amarnath	Supervise On	12/19/2024 11:30:25 AM
SubDirectory	LB134008	Test	Field Temperature

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	N/A

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	P5051-01	14B-1	SAM	12/02/24 07:38		Ayul	OK
2	P5051-02	14B-2	SAM	12/02/24 08:38		Ayul	OK
3	P5051-03	14B-3	SAM	12/02/24 09:39		Ayul	OK
4	P5051-04	14B-4	SAM	12/02/24 10:38		Ayul	OK

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

Prep Standard - Chemical Standard Summary

Order ID : P5051

Test : Cyanide,Cyanide-Amenable,Field pH,Field Temperature,Hexavalent Chromium,Non-Polar Material,TSS

Prepbatch ID : PB165397,

Sequence ID/Qc Batch ID: LB133695,LB133715,LB133772,LB133801,LB133806,LB134007,LB134008,

Standard ID :
EP2570,WP100827,WP100828,WP108640,WP108658,WP108659,WP109068,WP109325,WP109549,WP 110103,WP1 10390,WP110391,WP110826,WP110899,WP110913,WP110914,WP110915,WP110916,WP110917,WP110918,WP1109 19,WP110920,WP110921,WP110922,WP110950,WP110951,WP110952,WP110953,WP110954,WP110955,WP110956, WP110957,WP110958,WP99896,

Chemical ID :
E3551,E3657,E3830,M5173,M5673,M5929,M6069,M6121,W2606,W2651,W2652,W2668,W2783,W2845,W2882,W289 8,W2979,W3001,W3011,W3019,W3071,W3079,W3093,W3094,W3101,W3107,W3112,W3138,W3139,W3140,W3153, W3154,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2570	12/02/2024	01/03/2025	Rajesh Parikh	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 12/02/2024

FROM 4000.00000gram of E3551 = Final Quantity: 4000.000 gram

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
114	hexavalent chromium color reagent	WP100827	02/02/2023	02/09/2023	Rubina Mughal	WETCHEM_SCALE_5 (WC SC-5)	None	Iwona Zarych 02/02/2023

FROM 0.25000gram of W2979 + 50.00000ml of W2783 = Final Quantity: 50.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3456	Cyanide Intermediate Working Std, 5PPM	WP100828	02/02/2023	02/03/2023	Iwona Zarych	None	WETCHEM_PIPETTE_3 (WC)	Sohil Jodhani 02/07/2023

FROM 0.25000ml of W2898 + 49.75000ml of WP99896 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
11	Sodium hydroxide absorbing solution 0.25 N	WP108640	07/05/2024	01/05/2025	Rubina Mughal	WETCHEM_SCALE_4 (WCSC-4)	None	Iwona Zarych 07/08/2024

FROM 21.00000L of W3112 + 210.00000gram of E3657 = Final Quantity: 21.000 L

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1993	HEXAVALENTCHROMIUM STOCK STD 1, 50PPM	WP108658	07/09/2024	01/09/2025	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 07/09/2024

FROM 0.14140gram of W2651 + 1000.00000ml of W3112 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1994	HEXAVALENTCHROMIUM STOCK STD 2, 50PPM	WP108659	07/09/2024	01/09/2025	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 07/09/2024

FROM 0.14140gram of W2652 + 1000.00000ml of W3112 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
607	PYRIDINE-BARBITURIC ACID	WP109068	08/06/2024	12/08/2024	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 08/07/2024

FROM 145.00000ml of W3112 + 15.00000gram of W2882 + 15.00000ml of M5929 + 75.00000ml of W3019 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
922	0.2N SULFURIC ACID	WP109325	08/19/2024	02/19/2025	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 08/20/2024

FROM 5.60000ml of M5173 + 994.40000ml of W3112 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3371	Cyanide LCS Spike Solution, 5PPM	WP109549	09/06/2024	01/05/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 09/06/2024

FROM 1.00000ml of W3138 + 199.00000ml of WP108640 = Final Quantity: 200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
539	CN BUFFER	WP110103	10/08/2024	04/08/2025	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 10/08/2024

FROM 138.00000gram of W2668 + 862.00000ml of W3112 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3214	Magnesium Chloride For Cyanide 2.5M(51%W/V)	WP110390	10/24/2024	04/24/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 10/24/2024

FROM 500.00000ml of W3112 + 510.00000gram of W3001 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1714	Sulfuric Acid, 50% (v/v)	WP110391	10/24/2024	04/24/2025	Niha Farheen Shaik	None	None	Iwona Zarych 10/24/2024

FROM 1000.00000ml of M5673 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
229	1:1 HCL	WP110826	11/22/2024	05/13/2025	Jignesh Parikh	None	None	Iwona Zarych 11/22/2024

FROM 500.00000ml of M6121 + 500.00000ml of W3112 = Final Quantity: 1.000 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3850	Cyanide MS-MSD spiking solution, 5PPM	WP110899	12/02/2024	01/05/2025	Iwona Zarych	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 1.00000ml of W3154 + 199.00000ml of WP108640 = Final Quantity: 200.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
110	calibration std. hexchrome 0 ppm	WP110913	12/02/2024	12/03/2024	Rubina Mughal	None	None	Jignesh Parikh 12/03/2024

FROM 100.00000ml of W3112 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1103	HEX CHROME INTERMEDIATE STD SOURCE 1 (5PPM)	WP110914	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 9.00000ml of W3112 + 1.00000ml of WP108658 = Final Quantity: 10.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
109	calibration std. hexchrome 0.01 ppm	WP110915	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 99.80000ml of W3112 + 0.20000ml of WP110914 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3800	Calibration Std Hexachrome 0.025 ppm	WP110916	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 99.50000ml of W3112 + 0.50000ml of WP110914 = Final Quantity: 100.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
108	Calibration Std. hexchrome 0.05 ppm	WP110917	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 99.00000ml of W3112 + 1.00000ml of WP110914 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
107	Calibration Std. hexchrome 0.1 ppm	WP110918	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 99.80000ml of W3112 + 0.20000ml of WP108658 = Final Quantity: 100.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3808	Calibration and CCV std HexChrome 0.5PPM	WP110919	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 99.00000ml of W3112 + 1.00000ml of WP108658 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3809	Calibration std HexChrome 1.0PPM	WP110920	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 98.00000ml of W3112 + 2.00000ml of WP108658 = Final Quantity: 100.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3804	Hexavalent Chromium ICV-LCS Std	WP110921	12/02/2024	12/03/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

FROM 99.00000ml of W3112 + 1.00000ml of WP108659 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
114	hexavalent chromium color reagent	WP110922	12/02/2024	12/09/2024	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Jignesh Parikh 12/03/2024

FROM 0.25000gram of W2979 + 50.00000ml of E3830 = Final Quantity: 50.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3456	Cyanide Intermediate Working Std, 5PPM	WP110950	12/05/2024	12/06/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 12/06/2024

FROM 0.25000ml of W3154 + 49.75000ml of WP108640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4	Calibation standard 500 ppb	WP110951	12/05/2024	12/06/2024	Niha Farheen Shaik	None	None	Iwona Zarych 12/06/2024

FROM 45.00000ml of WP108640 + 5.00000ml of WP110950 = Final Quantity: 50.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3761	Calibration-CCV CN Standard 250 ppb	WP110952	12/05/2024	12/06/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 12/06/2024

FROM 2.50000ml of WP110950 + 47.50000ml of WP108640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
6	Calibration Standard 100 ppb	WP110953	12/05/2024	12/06/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 12/06/2024

FROM 1.00000ml of WP110950 + 49.00000ml of WP108640 = Final Quantity: 50.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
7	Calibration Standard 50 ppb	WP110954	12/05/2024	12/06/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 12/06/2024

FROM 0.50000ml of WP110950 + 49.50000ml of WP108640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
8	Calibration Standard 10 ppb	WP110955	12/05/2024	12/06/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 12/06/2024

FROM 1.00000ml of WP110951 + 49.00000ml of WP108640 = Final Quantity: 50.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
9	Calibration Standard 5 ppb	WP110956	12/05/2024	12/06/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 12/06/2024

FROM 0.50000ml of WP110951 + 49.50000ml of WP108640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
167	0 ppb CN calibration std	WP110957	12/05/2024	12/06/2024	Niha Farheen Shaik	None	None	Iwona Zarych 12/06/2024

FROM 50.00000ml of WP108640 = Final Quantity: 50.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1582	Chloramine T solution, 0.014M	WP110958	12/05/2024	12/06/2024	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 12/06/2024

FROM 0.08000gram of W3139 + 20.00000ml of W3112 = Final Quantity: 20.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
11	Sodium hydroxide absorbing solution 0.25 N	WP99896	11/15/2022	05/15/2023	Jignesh Parikh	WETCHEM_SCALE_4 (WCSC-4)	None	Iwona Zarych 11/15/2022

FROM 21.00000L of W2606 + 210.00000gram of W2845 = Final Quantity: 21.000 L

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1	313201	07/01/2025	01/03/2024 / Rajesh	07/20/2023 / Rajesh	E3551

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	23B1556310	12/31/2025	12/04/2023 / Rajesh	12/01/2023 / Rajesh	E3657

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	24H2762008	05/18/2025	11/18/2024 / Rajesh	11/15/2024 / Rajesh	E3830

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)	0000281827	06/02/2025	06/01/2022 /	04/05/2022 / william	M5173

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	09/21/2023 / mohan	09/05/2023 / mohan	M5673

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	12/08/2024	06/24/2024 / Al-Terek	06/07/2024 / Al-Terek	M5929

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	140440 / TEST PAPERS,PH,0-2.5,.2SENSI, 100PK	80A0441	02/29/2028	09/03/2024 / jignesh	08/19/2024 / Jaswal	M6069

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	10/24/2024	10/24/2019 / apatel	10/24/2019 / apatel	W2606

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AA13450-36 / Potassium Dichromate, 500g(NEW)	T15F019	01/24/2030	01/24/2020 / apatel	01/24/2020 / apatel	W2651

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	P188-500 / Potassium Dichromate, 500g(new-2nd lot)	194664	01/24/2030	01/24/2020 / apatel	01/24/2020 / apatel	W2652

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3818-5 / SODIUM PHOSPHATE, MONOBAS/HYD, CRYS, ACS, 2.5 KG	0000225799	12/03/2025	04/05/2021 / Alexander	02/10/2020 / apatel	W2668

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	0000263246	06/17/2023	12/23/2020 / ketankumar	12/23/2020 / ketankumar	W2783

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-7 / Sodium Hydroxide Pellets 12 Kg	21C2456604	01/31/2024	03/30/2022 / JIGNESH	06/24/2021 / apatel	W2845

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	EM-BX0035-3 / Barbituric Acid, 100 gms	1.00132.0100	04/30/2025	12/07/2021 /	11/30/2021 / apatel	W2882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Supelco	90157 / Cyanide Standard, 1000ppm from Supelco	HC03107133	06/30/2023	01/24/2022 / apatel	01/24/2022 / apatel	W2898

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	31390 / 1,5-Diphenylcarbazide	MKCR6636	12/09/2027	12/09/2022 / Iwona	12/09/2022 / Iwona	W2979

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	01237-10KG / Megnasium Chloride Hexahydrate ACS 10KG	002251-03319	06/06/2027	01/23/2023 / Iwona	06/06/2022 / Iwona	W3001

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	/ ICV-CN	ICV6-400	12/31/2024	01/03/2024 / Iwona	02/20/2020 / Iwona	W3011

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	270970-1L / Pyridine 1L	SHBQ2113	04/03/2028	04/03/2023 / Iwona	04/03/2023 / Iwona	W3019

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AL14455-3 / buffer solution pH 7 yellow	4308H30	07/31/2025	01/02/2024 / JIGNESH	12/06/2023 / Iwona	W3071

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	04667-2.5 / Silica Gel (60-200 mesh), 2.5 KG	072154301	01/30/2029	05/07/2024 / jignesh	01/30/2024 / jignesh	W3079

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	566002 / BUFFER PH 7.00 GREEN 1PINT PK6	44001f99	12/31/2025	04/03/2024 / jignesh	04/02/2024 / jignesh	W3093

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	1601-1 / PH 10.01 BUFFER,COLOR CD 475ML	4310g83	03/31/2025	04/03/2024 / jignesh	04/02/2024 / jignesh	W3094

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	470112-662 / TEST STRIPES, NITRATE/NITRITE, PK50	402403	04/30/2026	05/02/2024 / Iwona	04/10/2024 / Iwona	W3101

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AL14055-3 / PH 4 BUFFER SOLUTION	AL14055-3	02/27/2026	09/05/2024 / jignesh	05/13/2024 / jignesh	W3107

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 / Iwona	07/03/2024 / Iwona	W3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	LC135457 / Cyanide Standard, 1000 PPM, Second Source	44080060	01/30/2025	09/06/2024 / Iwona	08/28/2024 / Iwona	W3138

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	JTE494-6 / CHLORAMINE-T BAKER 250GM	10239484	09/09/2029	09/09/2024 / Iwona	09/09/2024 / Iwona	W3139

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	140444 / TEST PAPERS,PH 0-14,.5 SENSI,100PK	10D0142	09/17/2029	09/17/2024 / Iwona	09/17/2024 / Iwona	W3140

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	24G1962003	08/22/2025	11/25/2024 / jignesh	11/21/2024 / jignesh	W3153

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	RC2543-4 / CYANIDE STD 1000PPM 4OZ	1411J58	05/31/2025	12/02/2024 / Iwona	12/02/2024 / Iwona	W3154

Certificate of Analysis

1.19533.0500 Cyanide standard solution traceable to SRM from NIST $K_2[Zn(CN)_4]$ in H_2O 1000 mg/l CN Certipur®

Batch HC03107133

		Batch Values	
Concentration	β (CN^-)	1002	mg/l

Determination method: Argentometric titration.
The content of this solution was determined with silver nitrate standard solution (article number 1.09081) standardized against volumetric standard sodium chloride (article number 1.02406). The expanded measurement uncertainty is ± 0.7 % (k=2 coverage factor for 95% coverage probability). The certified value is traceable to primary standard NIST SRM 999c (NIST: National Institute of Standards and Technology, USA) by means of volumetric standard sodium chloride, measured in the accredited calibration laboratory of Merck KGaA, Darmstadt, Germany in accordance to DIN EN ISO/IEC 17025.

Date of release (DD.MM.YYYY) 02.07.2020
Minimum shelf life (DD.MM.YYYY) 30.06.2023

Ayfer Yildirim
Responsible laboratory manager quality control

This document has been produced electronically and is valid without a signature.

ThermoFisher SCIENTIFIC

Certificate of Analysis

Product No.: 13450

Product: Potassium dichromate, ACS, 99.0% min

Lot No.: T15F019

Test	Limits	Results
Appearance	Orange-red crystals	Orange-red crystals
Identification	To Pass	Passes
Purity	99.0 % min	99.67 %
Insoluble matter	0.005 % max	0.004 %
Loss on drying	0.05 % max	0.03 %
Chloride	0.001 % max	< 0.001 %
Sulfate	0.005 % max	< 0.005 %
Iron	0.001 % max	< 0.001 %
Calcium	0.003 % max	0.0012 %
Sodium	0.02 % max	0.0047 %

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This is to certify that units of the lot number above 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 purchaser, formulator or those performing further manufacturing 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 above information is the actual analytical results obtained.

Acetone
ULTRA RESI-ANALYZED
For Organic Residue Analysis

Material No.: 9254-03
Batch No.: 0000263246
Manufactured Date: 2020/06/17
Expiration Date: 2023/06/17
Revision No: 1

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	>= 99.4 %	99.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0000 ppm	0.1000
Substances Reducing Permanganate	Passes Test	PT
Titrable Acid (µeq/g)	<= 0.3	0.1
Titrable Base (µeq/g)	<= 0.6	< 0.1
Water (H_2O)	<= 0.5 %	0.3
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	<= 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	<= 10	5

For Laboratory, Research or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

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

RICCA CHEMICAL COMPANY®

1490 Lammers Pike
Batesville, IN 47006
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

W3071
Rec 12/6/23

Certificate of Analysis 12

Buffer, Reference Standard, pH 7.00 ± 0.01 at 25°C (Color Coded Yellow)

Lot Number: 4308H30 **Product Number:** 1551

Manufacture Date: AUG 09, 2023
Expiration Date: JUL 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	45	50
pH	7.12	7.09	7.06	7.04	7.02	7.00	6.99	6.98	6.98	6.97	6.97

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Phosphate Dibasic	7558-79-4	ACS
Potassium Dihydrogen Phosphate	7778-77-0	ACS
Preservative	Proprietary	
Yellow Dye	Proprietary	
Sodium Hydroxide	1310-73-2	Reagent

Test	Specification	Result	
Appearance	Yellow liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	7.002	0.02	186-I-g, 186-II-g, 191d

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer A	ASTM (D 5464)
Buffer A	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1551-2.5	10 L Cubitainer®	24 months
1551-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (08/09/2023)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

~~W2918~~ W3001 Rec. 06/06/22 exp. 06/06/27

Chem-Impex International, Inc.

Tel: (630) 766-2112
E-mail: sales@chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191

Fax: (630) 766-2218
Web site: www.chemimpex.com
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191

Certificate of Analysis

Catalogue Number	01237
Product	**Magnesium chloride hexahydrate**
Lot Number	002251-03319
	Magnesium chloride•$6H_2O$
CAS Number	7791-18-6
Molecular Formula	$MgCl_2$•$6H_2O$
Molecular Weight	203.3

Appearance	Colorless crystals, very deliquescent
Heavy Metals	< 5 ppm
Anion	Nitrate : < 0.001% Phosphate : < 5 ppm Sulfate : < 0.002%
Cation	Ammonium : < 0.002% Barium : < 0.005% Calcium : 0.0006% Iron : < 5 ppm Manganese : 1.8 ppm Potassium : 0.0006% Sodium : 0.0008% Strontium : 0.0015%
Insoluble material	0.0025%
Assay by titration	100.29%
Grade	ACS reagent
Storage	Store at RT
Country of Origin	India

Certificate of Analysis

Catalog Number: 01237 **Lot Number: 002251-03319**

Remarks	See material safety data sheet for additional information
	For laboratory use only

The foregoing is a copy of the Certificate of Analysis as provided by our supplier

Bala Kumar
Quality Control Manager

Sigma-Aldrich.

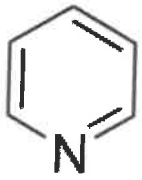
W3019
Rec 4/3/23

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 Name:
Pyridine - anhydrous, 99.8%

Product Number:	**270970**
Batch Number:	**SHBQ2113**
Brand:	SIAL
CAS Number:	110-86-1
MDL Number:	MFCD00011732
Formula:	C5H5N
Formula Weight:	79.10 g/mol
Quality Release Date:	15 DEC 2022



Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
Infrared Spectrum	Conforms to Structure	Conforms
Purity (GC)	≥ 99.75 %	99.99 %
Water (by Karl Fischer)	≤ 0.003 %	0.002 %
Residue on Evaporation	≤ 0.0005 %	< 0.0001 %

Larry Coers, Director
Quality Control
Sheboygan Falls, WI US

ThermoFisher SCIENTIFIC

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	P188	Quality Test / Release Date	08/12/2019
Lot Number	194664		
Description	POTASSIUM DICHROMATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Aug/2024
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.		
Chemical Comment			

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Fine, orange-red crystals
ASSAY	%	>= 99	99.2
CALCIUM	%	<= 0.003	<0.003
CHLORIDE	%	<= 0.001	<0.001
LOSS ON DRYING @ 105 C	%	<= 0.05	<0.05
SULFATE (SO4)	%	<= 0.005	<0.005
INSOLUBLE MATTER	%	<= 0.005	0.003
IRON (Fe)	%	<= 0.001	<0.001
SODIUM (Na)	%	<= 0.02	<0.02
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST

Teresa Bailey-Wyche

Quality Assurance Specialist - Certificate of Analysis 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.

PRODUCTOS QUIMICOS MONTERREY, S.A. DE C.V.

MIRADOR 201, COL. MIRADOR
MONTERREY, N.L. MEXICO
CP 64070
TEL +52 81 13 52 57 57
www.pqm.com.mx

CERTIFICATE OF ANALYSIS

PRODUCT :	SODIUM SULFATE CRYSTALS ANHYDROUS		
QUALITY :	ACS (CODE RMB3375)	FORMULA :	Na_2SO_4
SPECIFICATION NUMBER :	6399	RELEASE DATE:	ABR/21/2023
LOT NUMBER :	313201		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na_2SO_4)	Min. 99.0%	99.7 %
pH of a 5% solution at 25°C	5.2 - 9.2	6.1
Insoluble matter	Max. 0.01%	0.005 %
Loss on ignition	Max. 0.5%	0.1 %
Chloride (Cl)	Max. 0.001%	<0.001 %
Nitrogen compounds (as N)	Max. 5 ppm	<5 ppm
Phosphate (PO_4)	Max. 0.001%	<0.001 %
Heavy metals (as Pb)	Max. 5 ppm	<5 ppm
Iron (Fe)	Max. 0.001%	<0.001 %
Calcium (Ca)	Max. 0.01%	0.002 %
Magnesium (Mg)	Max. 0.005%	0.001 %
Potassium (K)	Max. 0.008%	0.003 %
Extraction-concentration suitability	Passes test	Passes test
Appearance	Passes test	Passes test
Identification	Passes test	Passes test
Solubility and foreing matter	Passes test	Passes test
Retained on US Standard No. 10 sieve	Max. 1%	0.1 %
Retained on US Standard No. 60 sieve	Min. 94%	97.3 %
Through US Standard No. 60 sieve	Max. 5%	2.5 %
Through US Standard No. 100 sieve	Max. 10%	0.1 %

COMMENTS

QC: PhC Irma Belmares

If you need further details, please call our factory or contact our local distributor.

RG-02-01, Ed. 3

Recd. by RB on 7/24/23 E3551

VWR®

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: 0583
Grade: ACS GRADE
Batch Number: 23B1556310

Chemical Formula: NaOH
Molecular Weight: 40
CAS #: 1310-73-2
Appearance:

Pellets

Manufacture Date: 12/14/2022
Expiration Date: 12/31/2025

Storage: Room Temperature

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Internal ID #: 710

Signature

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

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

E 3657	E 3659
E 3654	E 3660

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9254-03
Batch No.: 24H2762008
Manufactured Date: 2024-04-18
Expiration Date:2027-04-18
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected forwater)	>= 99.4 %	100.0 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.0 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	<= 0.3	0.2
Titrable Base (µeq/g)	<= 0.6	<0.1
Water (H_2O)	<= 0.5 %	<0.1 %
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

Recd. by RP on 11/15/24

E 3830

J Croak

Jamie Croak
Director Quality Operations, Bioscience Production

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

W3011
W3012
W3013
W3014
W3015

For ICP-MS use: dilute the ICV1 concentrate 50-fold with 1% (v/v) nitric acid; pipet 2 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA: dilute the ICV5 concentrate 100-fold with 2% (v/v) nitric acid; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide: dilute the ICV6 concentrate 100-fold with Type II water; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-1014		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2520	504
Sb	1010	202
As	997	199
Ba	518	104
Be	514	103
Cd	514	103
Ca	10000	2000
Cr	517	103
Co	521	104
Cu	505	101
Fe	10100	2020
Pb	1030	206
Mg	5990	1198
Mn	524	105
Ni	525	105
K	9940	1988
Se	1030	206
Ag	252	50
Na	10100	2020
Tl	1040	208
V	504	101
Zn	1010	202

ICV5-0415		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	**CN^-**	99

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

Material No.: 9530-33
Batch No.: 0000281827
Manufactured Date: 2021/03/30
Retest Date: 2026/03/29
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.189
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.3
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	15.0
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

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

Material No.: 9530-33
Batch No.: 0000281827

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	3.0
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	< 0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.2
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	18.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	< 0.2
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.4
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

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

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™ | J.T.Baker®

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_2SO_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 SO2)	≤ 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™ | J.T.Baker®

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

James T Ethier

Jamie Ethier
Vice President Global Quality

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.9 %
ACS - Color (APHA)	≤ 10	5
ACS - Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.191
ACS - Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS - Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS - Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities - Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities - Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities - Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities - Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities - Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities - Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities - Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities - Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

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

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities - Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

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

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

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

Jamie Ethier
Vice President Global Quality

R: 8/19/24 M6069

MACHEREY-NAGEL

Certificate of Analysis

Product information

Product	pH-Fix 0.3-2.3
REF	92180
LOT	80A0441
Expiration date:	29.02.2028
Date of examination:	23.01.2024
Gradation:	pH 0.3-0.7-1.0-1.3-1.6-1.9-2.3

Confirmation

Hereby we confirm, that the above mentioned product has successfully passed our quality control system in accordance with ISO 9001 and meets the specific quality criteria.

This document has been produced electronically and is valid without a signature.

MACHEREY-NAGEL GmbH & Co. KG
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US Tel.: +1 888 321 62 24 sales-us@mn-net.com

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

R → 10/13/24
Met dig

M 6/21

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.3
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

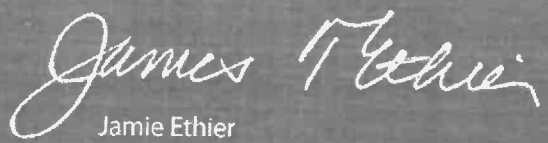
For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Material No.: 9530-33
Batch No.: 0000275677

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	<1
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

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

Certificate of Analysis

1.00132.0000 Barbituric acid for analysis EMSURE®
Batch N020065932

	Spec. Values		Batch Values	
Assay (acidimetric)	≥ 99	%	99.6	%
Identity (IR-spectrum)	passes test		passes test	
Chloride (Cl)	≤ 40	ppm	≤ 40	ppm
Heavy metals (as Pb)	≤ 50	ppm	≤ 50	ppm
Fe (Iron)	≤ 10	ppm	≤ 10	ppm
Sulfated ash	≤ 0.1	%	≤ 0.1	%
Loss on Drying (105 °C)	≤ 0.1	%	≤ 0.1	%
Suitability as reagent (for cyanide determination)	passes test		passes test	

Date of release (DD.MM.YYYY) 17.04.2020
Minimum shelf life (DD.MM.YYYY) 30.04.2025

Ioannis Chartomatsidis
Responsible laboratory manager quality control

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Sodium Phosphate, Monobasic, Monohydrate,
Crystal
BAKER ANALYZED® A.C.S. Reagent

(sodium dihydrogen phosphate, monohydrate)

Material No.: 3818-05
Batch No.: 0000225799
Manufactured Date: 2018/12/05
Retest Date: 2025/12/03
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NaH_2PO_4 \cdot H_2O$)	98.0 - 102.0 %	99.5
pH of 5% Solution at 25°C	4.1 - 4.5	4.3
Insoluble Matter	<= 0.01 %	< 0.01
Chloride (Cl)	<= 5 ppm	< 5
ACS - Sulfate (SO_4)	<= 0.003 %	< 0.003
Calcium (Ca)	<= 0.005 %	<0.005
Potassium (K)	<= 0.01 %	< 0.01
Heavy Metals (as Pb)	<= 0.001 %	< 0.001
Trace Impurities - Iron (Fe)	<= 0.001 %	< 0.001

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

Country of Origin: IN
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

Sigma-Aldrich.

W 2979

Rec: 12/08/22

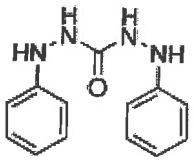
exp. 12/08/27

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 Name:
1,5-Diphenylcarbazide - ACS reagent

Product Number:	**259225**
Batch Number:	**MKCR6636**
Brand:	SIAL
CAS Number:	140-22-7
MDL Number:	MFCD00003013
Formula:	C13H14N4O
Formula Weight:	242.28 g/mol
Quality Release Date:	02 JUN 2022



Test	Specification	Result
Appearance (Color) Off-White to Pink, Light Purple or Tan	Conforms to Requirements	Pink
Appearance (Form)	Powder or Chunks	Powder
Melting Point	173.0 - 176.0 °C	173.0 °C
Infrared Spectrum	Conforms to Structure	Conforms
Residue on ignition (Ash) 15 minutes, 800 Degrees Celsius	≤ 0.05 %	0.01 %
Solubility	Pass	Pass
Sensitivity Test	Pass	Pass
Meets ACS Requirements	Current ACS Specification	Conforms

Larry Coers, Director
Quality Control
Milwaukee, WI US

Certificate of Analysis

W 3079
SP

Product information

Product:	**Silica 60, 0.063 - 0.200 mm**
REF:	**815330.25**
LOT:	**072154301**

Technical data

Material:	**Synthethic amorphus silica (irregular shaped)**
Description:	**White powder**

Parameter	Specifications	Result
Specific surface (m^2/g, N2 adsorption) :	450 - 550	537
Particle size distribution (screen analysis) :	< 63 µm max. 5 %	0.3
	> 200 µm max. 5 %	0.1
pH value :	6.0 - 7.5	7
Water content (%) :	< 7	3.6
Pore volume (mL/g, N2 adsorption) :	0.65 - 0.85	0.82
Mean pore size (Å, N2 adsorption) :	50 - 70	62

Expiry

This product has no stated expiration date or shelf life.

We recommend to use the product within a time period of 5 years after date of QC release.
This time period is valid only if the product is stored under dry and frost-free conditions.
After 5 years we recommend retesting the adsorbent to make sure that the expected performance is still given.

Confirmation

Hereby we confirm, that the above mentioned product has successfully passed our quality control system in accordance with ISO 9001 and meets the specific quality criteria.

This document has been produced electronically and is valid without a signature.

Date of measurement: 16.02.2023 22:00

RICCA CHEMICAL COMPANY®

1490 Lammers Pike
Batesville, IN 47006
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

W3093 0941.. 04/03/2024 LG

Certificate of Analysis

Buffer, Reference Standard, pH 7.00 ± 0.01 at 25°C (Color Coded Yellow)

Lot Number: 4401F99 **Product Number:** 1551

Manufacture Date: JAN 08, 2024
Expiration Date: DEC 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	45	50
pH	7.12	7.09	7.06	7.04	7.02	7.00	6.99	6.98	6.98	6.97	6.97

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Phosphate Dibasic	7558-79-4	ACS
Potassium Dihydrogen Phosphate	7778-77-0	ACS
Preservative	Proprietary	
Yellow Dye	Proprietary	
Sodium Hydroxide	1310-73-2	

Test	Specification	Result	
Appearance	Yellow liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	7.004	0.02	186-I-g, 186-II-g, 191d

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer A	ASTM (D 5464)
Buffer A	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1551-1	4 L natural poly	24 months
1551-1CT	4 L Cubitainer®	24 months
1551-2.5	10 L Cubitainer®	24 months
1551-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (01/08/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

RICCA CHEMICAL COMPANY®

1490 Lammers Pike
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http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

W3094 78 opuz: 04/03/2025

Certificate of Analysis

Buffer, Reference Standard, pH 10.00 ± 0.01 at 25°C (Color Coded Blue)

Lot Number: 4310G83 **Product Number:** 1601

Manufacture Date: OCT 09, 2023
Expiration Date: MAR 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	50
pH	10.31	10.23	10.17	10.11	10.05	10.00	9.95	9.91	9.87	9.81

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Carbonate	497-19-8	ACS
Sodium Bicarbonate	144-55-8	ACS
Sodium Hydroxide	1310-73-2	Reagent
Preservative	Proprietary	
Blue Dye	Proprietary	

Test	Specification	Result	
Appearance	Blue liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	10.003	0.02	186-I-g, 186-II-g, 191d

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer C	ASTM (D 5464)
Buffer C	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1601-16	500 mL natural poly	18 months
1601-5	20 L Cubitainer®	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (10/09/2023)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

RICCA CHEMICAL COMPANY®

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W3107 38

Certificate of Analysis

Buffer, Reference Standard, pH 4.00 ± 0.01 at 25°C (Color Coded Red)

Lot Number: 4403F90 **Product Number:** 1501

Manufacture Date: MAR 09, 2024
Expiration Date: FEB 2026

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST Traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	45	50
pH	4.00	4.00	4.00	4.00	4.00	4.00	4.01	4.02	4.03	4.04	4.06

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Acid Phthalate	877-24-7	Buffer
Preservative	Proprietary	Commercial
Red Dye	Proprietary	Purified

Test	Specification	Result	
Appearance	Red liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	4.000	0.02	185i, 186-I-g, 186-II-g

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer B	ASTM (D 5464)
Buffer B	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1501-2.5	10 L Cubitainer®	24 months
1501-32	1 L natural poly	24 months
1501-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (03/09/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

LabChem
Part of TCP Analytical Group
Jackson's Pointe Commerce Park- Building 1000
1010 Jackson's Pointe Court, Zelienople, PA 16063

Certificate of Analysis

Cyanide Standard 1000 ppm (1ml = 1mg CN)

Product Code: **LC13545**

Manufacture Date: August 01, 2024

Lot Number: **44080060**

Expiration Date: January 30, 2025

Test	Specification	Result
Appearance (clarity)	clear solution	clear solution
Appearance (color)	colorless	colorless
Concentration (CN)	0.990 - 1.010mg/mL	1.008mg/mL
Concentration (CN)	990 - 1,010ppm	1,008ppm
Traceable to NIST SRM	Report	999b

Intended Use *- Product is intended for use in manufacturing procedures and laboratory procedures and protocols.*

Storage Information *- Unless noted on the product label, store the product under normal lab conditions in its tightly closed, original container. Do not pipet directly from the container or return unused portions to the container.*

Instructions for Handling and Use - *Please refer to the associated product label and Safety Data Sheet (SDS) for information regarding safety and handling of this product.*

Preparation - *All products are manufactured and tested according to established, documented procedures and methodology. Production documentation records manufacturing data, raw material traceability and testing history on a per lot basis. Balances, thermometers, and glassware are calibrated before first use and on a regular schedule with references traceable to NIST standards.*

The suffix of the product code may differ from what is on your product label. The suffix will designate the size and be associated with a numeric digit(s). Visit LabChem.com for more information

Suffix	1	2	3/3S/36/36S	4/4C	5	6	7	8	9	20	44	200	246	486
Size	500mL or g	1L or 1kg	2.5L/2.5L Coated/6x2.5L/6x2.5L Coated	4L	20L	10L	125mL	25g	100g	20x20mL	4x4L	200L	24x6mL	48x6mL

Michael Monteleone

Michael Monteleone
Chemistry Supervisor - Quality Control

ISO9001:2015 Registration #0306-01

2024080113:32:16bsturges-0-0

ThermoFisher SCIENTIFIC

Certificate of Analysis

W3139 Received on 9/9/24 by IZ

Product No.:	A12044
Product:	Chloramine-T trihydrate, 98%
Lot No.:	10239484

Appearance:	White powder
Melting Point:	166°C(dec)
Assay (Iodometric titration):	100.5%
Identification (FTIR):	Conforms

Order our products online **thermofisher.com/chemicals**

This document has been electronically generated and does not require a signature.

n-Hexane 95%
ULTRA RESI-ANALYZED
For Organic Residue Analysis

avantor™ | J.T.Baker®

W3153
TB
Opyte. 11/25/2024
TB

Certificate of Analysis

Material No.: 9262-03
Batch No.: 24G1962003
Manufactured Date: 2024-05-23
Expiration Date: 2025-08-22
Revision No.: 0

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	3
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1
ECD-Sensitive Impurities (as Ethylene Dibromide) - Single Impurity Peak (ng/mL)	≤ 5	1
Assay (Total Saturated C_6 Isomers) (by GC, corrected for water)	≥ 99.5 %	99.7 %
Assay (as n-Hexane) (by GC, corrected for water)	≥ 95 %	98 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.1 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	≤ 0.05 %	< 0.01 %

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

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

JCroak

Jamie Croak
Director Quality Operations, Bioscience Production

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

RICCA CHEMICAL COMPANY®
W3154 Rec. on 12/2/24 by IZ

448 West Fork Dr
Arlington, TX 76012
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Cyanide Standard, 1000 ppm CN^-

Lot Number: 1411J58 **Product Number:** 2543

Manufacture Date: NOV 22, 2024
Expiration Date: MAY 2025

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution certifiec traceable to NIST Standard Reference Material 999. The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is the combined uncertainty based on the stability of the assayed Potassium Cyanide, and the uncertainty in the mass and volume measurements.
Use 0.16% (w/v) (0.04 N) Sodium Hydroxide or 0.225 % (w/v) (0.04 N) Potassium Hydroxide to make dilutions of this standard. Restandardize weekly if extreme accuracy is required.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Cyanide	151-50-8	ACS
Sodium Hydroxide	1310-73-2	Reagent

Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN^-)	995-1005 ppm	1000 ppm

Specification	Reference
Stock Standard Cyanide Solution	APHA (4500-CN- F)
Stock Cyanide Solution	APHA (4500-CN- E)
Stock Cyanide Solution	APHA (4500-CN- K)
Stock Cyanide Solution	APHA (4500-CN- H)
Cyanide Reference Solution (1000 mg/L)	EPA (SW-846) (7.3.3.2)
Cyanide Calibration Stock Solution (1,000 mg/L CN-)	EPA (SW-846) (9213)
Stock Cyanide Solution	EPA (335.3)
Stock Cyanide Solution	EPA (335.2)
Cyanide Solution Stock	ASTM (D 4282)
Simple Cyanide Solution, Stock (1.0 g/L CN)	ASTM (D 4374)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
2543-16	500 mL amber poly	6 months
2543-32	1 L amber poly	6 months
2543-4	120 mL amber poly	6 months

Recommended Storage: 2°C - 8°C (36°F - 46°F)

Luis Briceno (11/22/2024)
Operations Supervisor

SHIPPING DOCUMENTS

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. P5051
QUOTE NO.
COC Number 2042252

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: NYC Dep of Environmental
ADDRESS: 3701 Jerome Ave
CITY Bronx STATE: NY ZIP:
ATTENTION: Nicholas Prokopowicz
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Industrial wastewater Discharge Permit 2024
PROJECT NO.: LOCATION:
PROJECT MANAGER:
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

- ☐ Level 1 (Results Only)
- ☐ Level 2 (Results + QC)
- ☐ Level 3 (Results + QC + Raw Data)
- ☐ Level 4 (QC + Full Raw Data)
- ☐ NJ Reduced ☐ US EPA CLP
- ☐ NYS ASP A ☐ NYS ASP B
- ☐ Other _____
- ☐ EDD FORMAT _____

ANALYSIS

1 VOCs 2 Metals 3 Cyanide 4 O&G 5 TSS, Met chrom/PH 6 7 8 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES A 1	B 2	D 3	C 4	E 5	6	7	8	9	COMMENTS
1.	14B #1	AQ		X	120224	0733	6	X	X	X	X	X					6.61 / 11.44 C
2.	14B #2			X		0833	6	X	X	X	X	X					6.73 / 10.36 C
3.	14B #3			X		0933	6	X	X	X	X	X					6.75 / 11.09 C
4.	14B #4			X		1033	6	X	X	X	X	X					6.7 / 11.96 C
5.	14B #4 MS/MSD			X		1038	2				X						
6.																	
7.																	
8.																	
9.																	
10.																	

PRESERVATIVES: A-HCl B-HN03 C-H2SO4 D-NaOH E-ICE F-OTHER

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	1100 12-02-24	1.
2.		2.
3.	1330 12-02-24	3.

Conditions of bottles or coolers at receipt: ☒ COMPLIANT ☐ NON COMPLIANT ☒ COOLER TEMP 2.4 °C
Comments:

Page 1 of 1

CLIENT: ☐ Hand Delivered ☐ Other _____
CHEMTECH: ☐ Picked Up ☒ Field Sampling

Shipment Complete ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH

284 Sheffield Street Mountainside, NJ 07092

Laboratory Composite Sample log

Chemtech Project number: P5051 Date: 12-02-24

Client Name: New York Dep of Environmental Client Project Name : Industrial W/w Discharge

Instructions: Composite metals, Cyanide, Hex chrom Samples 4:1

Sample Custodian: JM

Client Sample ID	Weigh /Volume used	New ID	Sample Description	Sample Composite time	Comments
14B #1	500mL - 125mL 1000mL - 250mL	14B(1-4)Comp	Dark Brown water	14.26	125 x 4 = 500mL 250x4 = 1000mL > Volume used
14B #2					
14B #3					
14B #4					

CHEMTECH

284 Sheffield Street, Mountainside, NJ 07092 Tel. 908-789-8900 Fax 908-789-8922

FIELD SAMPLING LOG

Client Name: New York city Dep of Environmental
Client Address: 3701 Jerome Ave, Bronx, NY
Client Rep on Site: Nicholas Prokopowicz
Sampling Date: 12-02-24
Arrival Time: 0659 Departure Time: 1100

Project Name: Industrial wastewater Discharge permit 2024
Project Location: Bronx NY
Cooler Custody Seal: N/A
Temperature Correction Factor (°C): N/A

FIELD SAMPLING INFORMATION

Sampling Location	Date/Time of sampling	Field Measurements			
		Date/Time of Analysis	pH	Temperature °C	Specific Conductance (mS/cm) (99% -101%)
CCV (W3071)	12-02-24 0728	12-02-24 0731	7.01	12.10	N/A
14B #1	0733	0738	6.61	11.44	
14B #2	0833	0838	6.73	10.36	
14B #3	0933	0939	6.75	11.09	
14B #4	1033	1038	6.71	11.96	
DUP	1042	1045	6.73	11.94	
CCV (W3071)	1048	1052	7.00	12.06	

Meter: YSI MPS, Model # 556, Serial # 085A0063

Sampler Signature/Date: 12-02-24

Supervisor Review/Date: 12-2-24

CHEMTECH
284 Sheffield Street, Mountainside, NJ 07092 Tel. 908-789-8900 Fax 908-789-8922

FIELD SAMPLING LOG

Client Name: New York City Dep of Environmental
Client Address: 3701 Jerome Ave, Bronx, NY
Client Rep on Site: Nicholas Prokopowicz
Sampling Date: 12-02-24
Arrival Time: 0659 Departure Time: _____

Project Name: Industrial Wastewater Discharge permit 2024
Project Location: Bronx NY
Cooler Custody Seal: N/A
Temperature Correction Factor (°C): N/A

FIELD EQUIPMENT CALIBRATION (± 1%) (99% -101%)

pH Calibration (± 1%) (99% -101%) (SM4500-H B/9040C)				
Calibration (± 1%) (99% -101%)				ICV (± 0.1 pH unit)
	7.00 Buffer	4.00 Buffer	10.00 Buffer	7.00 Buffer
	W 3071	W 3107	W 3094	W 3093
Time	0710	0713	0718	0723
Temp °C	12.18	11.40	10.41	10.60
pH	7.00	3.99	9.98	7.01

FIELD EQUIPMENT CALIBRATION (± 1%) (99% -101%)

Specific Conductance (mS/cm) (99% -101%)/(mmho/cm) (SM2510 B/120.1/9050A)		
Calibration (± 1%) (99% -101%)		ICV (± 1%) (99% -101%)
	WP	WP
Time		
Temp °C		
Reading (mS/cm)		

Sampler Signature/Date: 12-02-24

Supervisor Review/Date: 12-2-24

QA Control# A3041241

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

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

Alliance TECHNICAL GROUP

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : P5051 NEWY17
Client Name : New York City DEP of Env
Client Contact : Nicholas Prokopowicz
Invoice Name : New York City DEP of Env
Invoice Contact : Nicholas Prokopowicz

Order Date : 12/2/2024 2:00:00 PM
Project Name : Industrial Wastewater Disch
Receive DateTime : 12/2/2024 1:30:00 PM
Purchase Order :

Project Mgr :
Report Type : Level 2
EDD Type : EXCEL NOCLEANUP
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
P5051-01	14B-1	Water	12/02/2024	07:35 07:33	VOCMS Group1		624.1		10 Bus. Days
P5051-02	14B-2	Water	12/02/2024	08:33	VOCMS Group1		624.1		10 Bus. Days
P5051-03	14B-3	Water	12/02/2024	09:33	VOCMS Group1		624.1		10 Bus. Days
P5051-04	14B-4	Water	12/02/2024	10:33	VOCMS Group1		624.1		10 Bus. Days

Relinguished By : JM
Date / Time : 12-02-24 1435

Received By : Sam
Date / Time : 12/02/24 14:35 Mgt 5

Storage Area : **VOA Refridgerator Room**