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Prep Standard - Chemical Standard Summary

Order ID : N6070

Test : SVOC-SIMGroup1

Prepbatch ID : PB149692,

Sequence ID/Qc Batch ID: BN121922,

Standard ID :
EP2260,EP2278,EP2279,SP6015,SP6029,SP6030,SP6031,SP6059,SP6064,SP6065,SP6077,SP6078,SP6079,SP6080,
SP6081,SP6082,SP6083,SP6085,

Chemical ID :
10ul/1000ul
sample,E3382,E3397,E3412,E3425,E3430,E3432,E3446,M5037,S10089,S10090,S10210,S10244,S10523,S10541,S105
49,S10597,S10648,S10715,S8793,S9217,S9238,S9273,S9285,S9725,S9901,S9916,S9919,W2606,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
314	1.1 H2SO4 SOLN	EP2260	07/28/2022	01/28/2023	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 07/28/2022

FROM 1000.00000ml of M5037 + 1000.00000ml of W2606 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1874	10 N SODIUM HYDROXIDE SOLN	EP2278	11/22/2022	02/04/2023	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 11/22/2022

FROM 1000.00000ml of W2606 + 400.00000gram of E3382 = Final Quantity: 1000.000 ml

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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	EP2279	11/28/2022	04/13/2023	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 11/28/2022

FROM 4000.00000gram of E3412 = Final Quantity: 4000.000 gram

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3493	Internal Standard 0.4 PPM	SP6015	09/28/2022	03/13/2023	Jagrut Upadhyay	None	None	mohammad ahmed 10/05/2022

FROM 0.02000ml of S10523 + 0.98000ml of E3397 = Final Quantity: 1.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3895	50 ug/ml DFTPP 8270E	SP6029	10/25/2022	02/16/2023	Christian Giraldo	None	None	mohammad ahmed 11/01/2022

FROM 1.00000ml of S10244 + 19.00000ml of E3397 = Final Quantity: 20.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3355	8270-SIM MDL-3.2PPM CALIBRATION STOCK SOL- 2ND SOURCE	SP6030	10/25/2022	02/26/2023	Jagrut Upadhyay	None	None	mohammad ahmed 11/01/2022

FROM 0.00630ml of S9725 + 0.01280ml of S10597 + 0.03200ml of S8793 + 0.03200ml of S9285 + 0.06400ml of S10089 + 0.06400ml of S10210 + 0.06400ml of S10648 + 19.72490ml of E3397 = Final Quantity: 20.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3356	8270-SIM MDL-0.4PPM CALIBRATION SOL ICV-2ND SOURCE	SP6031	10/25/2022	02/26/2023	Jagrut Upadhyay	None	None	mohammad ahmed 11/01/2022

FROM 0.87500ml of E3397 + 0.01000ml of SP6015 + 0.12500ml of SP6030 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3492	8270-SIM-Spike 0.4 PPM	SP6059	11/10/2022	02/28/2023	Christian Giraldo	None	None	mohammad ahmed 11/17/2022

FROM 0.00080ml of S9901 + 0.01000ml of S10549 + 0.02000ml of S10090 + 0.02000ml of S10210 + 0.02000ml of S10648 + 49.92920ml of E3425 = Final Quantity: 50.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3491	8270-SIM-Surrogate 0.4 PPM	SP6064	11/30/2022	03/16/2023	Christian Giraldo	None	None	mohammad ahmed 12/07/2022

FROM 0.00200ml of S9725 + 0.00400ml of S10597 + 0.01000ml of S9273 + 49.98400ml of E3430 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3493	Internal Standard 0.4 PPM	SP6065	12/05/2022	05/22/2023	Christian Giraldo	None	None	mohammad ahmed 12/07/2022

FROM 0.10000ml of S10541 + 4.90000ml of E3432 = Final Quantity: 5.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3339	8270 sim calibration stock 10ppm (CPI)	SP6077	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.03350ml of S9238 + 0.05000ml of S9217 + 0.12500ml of S9273 + 0.12500ml of S9919 + 0.25000ml of S10715 + 0.25000ml of S9916 + 24.16650ml of E3432 = Final Quantity: 25.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3361	8270-SIM MDL-5PPM CALIBRATION SOLUTION	SP6078	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.50000ml of E3432 + 0.01000ml of SP6065 + 0.50000ml of SP6077 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3341	8270-SIM MDL-3.2PPM CALIBRATION SOLUTION	SP6079	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.68000ml of E3432 + 0.01000ml of SP6065 + 0.32000ml of SP6077 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3344	8270-SIM MDL-1.6PPM CALIBRATION SOLUTION	SP6080	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.84000ml of E3432 + 0.01000ml of SP6065 + 0.16000ml of SP6077 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3342	8270-SIM MDL-0.8PPM CALIBRATION SOLUTION	SP6081	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.92000ml of E3432 + 0.01000ml of SP6065 + 0.08000ml of SP6077 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3343	8270-SIM MDL-0.4PPM CALIBRATION SOLUTION	SP6082	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.96000ml of E3432 + 0.01000ml of SP6065 + 0.04000ml of SP6077 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3345	8270-SIM MDL-0.2PPM CALIBRATION SOLUTION	SP6083	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.50000ml of E3432 + 0.01000ml of SP6065 + 0.50000ml of SP6082 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3346	8270-SIM MDL-0.1PPM CALIBRATION SOLUTION	SP6085	12/08/2022	02/26/2023	Christian Giraldo	None	None	mohammad ahmed 12/19/2022

FROM 0.75000ml of E3432 + 0.01000ml of SP6065 + 0.25000ml of SP6082 = Final Quantity: 1.010 ml

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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	220601-B017657	02/04/2023	08/04/2022 / Rajesh	08/03/2022 / Rajesh	E3382

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	22G1962004	03/13/2023	09/13/2022 / Rajesh	09/02/2022 / Rajesh	E3397

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	139404	04/13/2023	10/18/2022 / Rajesh	10/13/2022 / Rajesh	E3412

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)	22E1562001	05/03/2023	11/03/2022 / Rajesh	11/03/2022 / Rajesh	E3425

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)	22E1562001	05/29/2023	11/29/2022 / Rajesh	11/16/2022 / Rajesh	E3430

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	22I2962012	05/22/2023	11/22/2022 / Rajesh	11/14/2022 / Rajesh	E3432

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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-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	22J1962006	06/13/2023	12/13/2022 / Rajesh	11/14/2022 / Rajesh	E3446

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)	0000250349	12/15/2024	01/06/2022 / mohan	09/18/2021 / mohan	M5037

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0178679	04/20/2023	10/20/2022 / Christian	11/23/2021 / Christian	S10089

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0178679	04/20/2023	10/20/2022 / Christian	11/23/2021 / Christian	S10090

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0176420	03/31/2023	10/20/2022 / Christian	03/18/2022 / Christian	S10210

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31615 / SV Mixture, GC/MS Tuning Mixture, CH2Cl2, 1mL,	A0182667	02/16/2023	08/16/2022 / Christian	03/18/2022 / Christian	S10244

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31206 / SV Mix, CLP method, Internal Std, 2000ug/mL, CH2Cl2, 1mL	A0180950	12/31/2027	09/23/2022 / Christian	07/05/2022 / Christian	S10523

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31206 / SV Mix, CLP method, Internal Std, 2000ug/mL, CH2Cl2, 1mL	A0180950	05/30/2023	11/30/2022 / Christian	07/05/2022 / Christian	S10541

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0179300	04/30/2023	10/31/2022 / Christian	07/05/2022 / Christian	S10549

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	03/16/2023	09/16/2022 / Christian	08/16/2022 / Christian	S10597

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0188685	04/20/2023	10/20/2022 / Christian	08/23/2022 / Christian	S10648

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-110816-01 / Custom 8270 Mix, 4-79, 1000 mg/L, 1 mL, (Maximum Expiration: 180 Days)	414127	02/26/2023	08/26/2022 / Christian	08/26/2022 / Christian	S10715

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	33913 / SOM01.0 SIM Analysis Standard (Surrogate), 2000 PPM	A0161851	02/26/2023	08/26/2022 / Jagrut	07/14/2020 / Christian	S8793

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-110094-02 / CLP Base/Neutral Surrogate Solution, 5000 mg/L, 1ml	411712	02/26/2023	08/26/2022 / Jagrut	02/25/2021 / Christian	S9217

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-112090-04 / CLP Acid Surrogate Solution, 7500 mg/L, 1ml	440246	02/26/2023	08/26/2022 / Jagrut	02/25/2021 / Christian	S9238

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	33913 / SOM01.0 SIM Analysis Standard (Surrogate), 2000 PPM	A0168492	04/28/2023	10/28/2022 / Christian	03/01/2021 / Christian	S9273

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0156277	04/25/2023	10/25/2022 / Jagrut	06/11/2020 / Christian	S9285

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ampul	A0173743	03/16/2023	09/16/2022 / Christian	08/25/2021 / Christian	S9725

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555872 / Custom Standard, pentachlorophenol Std [CS 5328-5]	A0175414	02/28/2023	08/30/2022 / Christian	08/12/2021 / Christian	S9901

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	z-110381-01 / 8270 Calibration Solution, 76-1, 500 & 1,000 mg/L, 1ml	459699	02/26/2023	08/26/2022 / Jagrut	09/03/2021 / Christian	S9916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	z-010223-01 / 1,4-Dioxane Solution, 2,000mg/L, 1ml	459696	06/08/2023	12/08/2022 / Christian	09/03/2021 / Christian	S9919

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

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Date Received: _____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110094-02	411712	≤ -10 °C	Methylene Chloride	6/24/2023	CLP Base/Neutral Surrogate Solution, 5,000 mg/L, 1 ml

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,2-dichlorobenzene-d_4	2199-69-1	98.5	247.29.2P	4983 ± 74.16
2-fluorobiphenyl	321-60-8	97.8	8.226.1P	5023 ± 89.92
nitrobenzene-d_5	4165-60-0	99.66	7.9.1P	5049 ± 74.97
p-terphenyl-d_{14}	1718-51-0	100	9.12.8.1P	5039 ± 74.99

Received on 02/25/21
by
CG

S9216
to
S9219

*Not a certified value

Certified By: _____
Shane Overcash
Chemist

All weights are traceable through N. I. S. T. Test No. 822/264157-00.
Concentration (correct for purity) and uncertainty (95% confidence) values listed are determined gravimetricly.

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Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110816-01	414127	≤ -10 °C	Methylene Chloride	6/21/2025	Custom 8270 Mix, 4-79, 1000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
atrazine	1912-24-9	99.5	337.7.3P	997 ± 5.81
benzidine	92-87-5	99.9	124.18.6.2P	991.8 ± 5.77
caprolactam	105-60-2	99.9	271.1.6P	999 ± 5.82

Received on
09/20/22
by CG

S10795
to
S10799

*Not a certified value

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Certified By: _____
Shane Overcash
Chemist

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Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-112090-04	440246	≤ -10 °C	Methylene Chloride	2/16/2026	CLP Acid Surrogate Solution, 7,500 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
2-chlorophenol-d_4	93951-73-6	99.3	248.12.7P	7487 ± 17.2
2-fluorophenol	367-12-4	99.8	10.7.3.3P	7513 ± 17.26
phenol-d6	13127-88-3	99.9	949.120.8P	7481 ± 17.19
2,4,6-tribromophenol	118-79-6	99.8	12.1.6P	7469 ± 17.17

Received on
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CG

S9236
to
S9240

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Certified By: Erica Castiglione

Erica Castiglione
Chemist

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Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-010223 -01	459696	≤ -10 °C	Methylene Chloride	7/13/2024	1,4-Dioxane Solution, 2,000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,4-dioxane	123-91-1	100	223.1.3P	1993 ± 21.11

Received
on
04/22/22
by
CG
S10318
to
S10322

*Not a certified value

Manufactured by o2si smart solutions, Accredited to ISO 9001:2008 by NSF and ISO/IEC 17025:2005 (Certification No. 3031.01) and ISO Guide 34:2009 (Certification No. 3031.02) by A2LA

Certified By: Joanna Radu

Joanna Radu
Chemist

All weights are traceable through N. I. S. T. Test No. 822/264157-00. Concentration (correct for purity) and uncertainty (95% confidence) values listed are determined gravimetricly.

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Received on 09/03/21 by CG
S9914 to S9918

Manufacturer's Quality System
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Date Received:_____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110381-01	459699	≤ -10 °C	Methylene Chloride	5/10/2026	Method 8270 Calibration Solution, 76-1, 500 & 1,000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
acenaphthene	83-32-9	99.9	13.1.5P	1000 ± 4.58
acenaphthylene	208-96-8	97.6	14.290.1P	1000 ± 4.58
aniline	62-53-3	99.9	64.7.1P	997.4 ± 4.57
anthracene	120-12-7	99.2	15.29.1.1P	1000 ± 10.95
azobenzene	103-33-3	98.1	252.7.2P	1001 ± 4.69
benzo[a]anthracene	56-55-3	98.7	16.7.2.5P	1000 ± 4.58
benzo[b]fluoranthene	205-99-2	98.7	17.1.16P	1000 ± 4.58
benzo[k]fluoranthene	207-08-9	98.9	18.421.4P	1000 ± 6.7
benzo[ghi]perylene	191-24-2	97.3	19.286.3P	1001 ± 20.51
benzo[a]pyrene	50-32-8	98.3	20.286.1P	1000 ± 20.49
benzyl alcohol	100-51-6	99.9	65.18.1P	982 ± 4.6
bis(2-chloroethoxy)methane	111-91-1	99.2	31.494.1P	997.5 ± 14.66
bis(2-chloroethyl)ether	111-44-4	99.8	32.7.1P	1005 ± 10.87
bis(2-chloro-1-methylethyl) ether	108-60-1	99.5	34.3.14P	1005 ± 11.93
bis(2-ethylhexyl)adipate	103-23-1	99.5	874.7.1P	995 ± 4.66
bis(2-ethylhexyl)phthalate	117-81-7	99.4	33.29.1P	993.5 ± 14.6
4-bromophenyl phenyl ether	101-55-3	99.4	35.7.1.1P	998.7 ± 10.8
butyl benzyl phthalate	85-68-7	98	36.1.5P	999.7 ± 14.69
carbazole	86-74-8	99	239.7.1P	987 ± 4.52

*Not a certified value

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Certified By: _____

Megan Warren
Chemist

All weights are traceable through N. I. S. T. Test No. 822/264157-00. Concentration (correct for purity) and uncertainty (95% confidence) values listed are determined gravimetricly.

Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 459699 **Expiration Date:** 5/10/2026

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
4-chloroaniline	106-47-8	99.9	66.9.1.1P	995.8 ± 10.91
4-chlorophenylphenyl ether	7005-72-3	98	37.158.2P	985 ± 14.47
4-chloro-3-methylphenol	59-50-7	99.9	102.7.1.1P	999.7 ± 10.81
2-chloronaphthalene	91-58-7	99.8	42.7.5.2P	988.8 ± 4.53
2-chlorophenol	95-57-8	99.9	103.1.3.1P	999.7 ± 14.69
chrysene	218-01-9	98	21.286.1.3P	1000 ± 20.49
dibenz[a,h]anthracene	53-70-3	98	22.286.2.1P	1000 ± 20.49
dibenzofuran	132-64-9	100	67.7.2.1P	991 ± 4.54
di-n-butyl phthalate	84-74-2	99.8	40.9.2P	999.9 ± 14.69
1,2-dichlorobenzene	95-50-1	99.5	43.1.2P	989.4 ± 4.53
1,3-dichlorobenzene	541-73-1	99.8	44.1.2P	991.7 ± 4.54
1,4-dichlorobenzene	106-46-7	99.9	45.29.1P	990.4 ± 4.53
2,4-dichlorophenol	120-83-2	99.2	104.9.1.1P	1011 ± 14.85
diethyl phthalate	84-66-2	99.8	38.7.1P	998.4 ± 10.79
2,4-dimethylphenol	105-67-9	99.6	105.7.1.1P	999.3 ± 10.8
dimethyl phthalate	131-11-3	99.9	39.9.2P	998.7 ± 10.8
1,2-dinitrobenzene	528-29-0	100	86.7.3P	993 ± 4.65
1,3-dinitrobenzene	99-65-0	100	313.7.2P	998 ± 4.68
1,4-dinitrobenzene	100-25-4	100	907.7.1P	999 ± 4.68
2,4-dinitrophenol	51-28-5	99.9	106.1.6DP	1000 ± 10.81
2,4-dinitrotoluene	121-14-2	100	87.7.3P	999.9 ± 10.81
2,6-dinitrotoluene	606-20-2	99.4	88.7.2.1P	998.8 ± 10.8
di-n-octyl phthalate	117-84-0	99.1	41.7.4P	996.5 ± 10.77
diphenylamine	122-39-4	99.9	78.29.1P	993.6 ± 14.6
2,3,5,6-tetrachlorophenol	935-95-5	99	1112.5.10P	989 ± 4.63
fluoranthene	206-44-0	98.6	23.7.4P	1001 ± 4.58
fluorene	86-73-7	99.8	24.1.4P	1008 ± 11.04

*Not a certified value

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Certified By: Megan Warren
Chemist

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Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 459699 **Expiration Date:** 5/10/2026

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
hexachlorobenzene	118-74-1	99	46.158.4P	997.5 ± 10.92
hexachlorobutadiene	87-68-3	97	47.158.2P	988.8 ± 10.83
hexachlorocyclopentadiene	77-47-4	96.5	48.2.1P	1014 ± 11.1
hexachloroethane	67-72-1	99.9	49.1.3P	989.5 ± 4.53
indeno[1,2,3-cd]pyrene	193-39-5	98	25.286.3P	1001 ± 10.96
isophorone	78-59-1	98.8	90.1.2P	995.7 ± 14.63
2-methyl-4,6-dinitrophenol	534-52-1	100	107.1.4.3DP	1003 ± 10.84
1-methylnaphthalene	90-12-0	98.4	249.7.4P	1001 ± 4.58
2-methylnaphthalene	91-57-6	99.1	68.8.1.1P	1002 ± 10.97
2-methylphenol	95-48-7	99.6	114.7.3P	1004 ± 10.86
3-methylphenol	108-39-4	99.2	115.7.3P	500.5 ± 5.41
4-methylphenol	106-44-5	99	116.1.3P	505.6 ± 7.43
naphthalene	91-20-3	99.8	26.9.2P	1000 ± 4.58
2-nitroaniline	88-74-4	99.7	69.29.1P	996.4 ± 4.57
3-nitroaniline	99-09-2	100	70.7.2P	995.6 ± 4.56
4-nitroaniline	100-01-6	99.8	71.1.1P	1000 ± 10.95
nitrobenzene	98-95-3	100	94.7.1P	999.5 ± 10.81
2-nitrophenol	88-75-5	99.1	108.29.1P	1000 ± 10.81
4-nitrophenol	100-02-7	99.9	109.8.1P	1000 ± 14.69
N-nitrosodimethylamine	62-75-9	99.5	57.3.18P	985.4 ± 11.7
N-nitrosodi-n-propylamine	621-64-7	100	59.7.4P	984.4 ± 10.64
pentachlorophenol	87-86-5	99	110.1.7P	1000 ± 10.81
phenanthrene	85-01-8	98.9	27.1.3P	1009 ± 11.05
phenol	108-95-2	100	112.7.1P	1011 ± 10.88
pyrene	129-00-0	98.5	28.9.1.1P	1000 ± 4.58
pyridine	110-86-1	100	101.24.1P	996.8 ± 4.46
2,3,4,6-Tetrachlorophenol	58-90-2	95	120.286.2.1P	984.2 ± 20.19

*Not a certified value

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Certified By: 

Megan Warren
Chemist

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Certificate of Analysis

Catalog No.: Z-110381-01

Lot No.: 459699 **Expiration Date:** 5/10/2026

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,2,4-trichlorobenzene	120-82-1	99.6	54.29.1P	987.3 ± 4.52
2,4,5-trichlorophenol	95-95-4	96.5	121.7.1P	996.6 ± 10.78
2,4,6-trichlorophenol	88-06-2	99.6	113.7.1P	1001 ± 10.82

*Not a certified value

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Certified By: _____

Megan Warren
Chemist

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Received on 06/11/20 by CG
S8666 to S8695

Catalog No. : 31853 **Lot No.:** A0156277

Description : 1,4-dioxane

1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2025 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane	2,003.0 µg/mL	+/- 11.7547	µg/mL	Gravimetric
	CAS # 123-91-1 (Lot SHBK6493)		+/- 42.9142	µg/mL	Unstressed
	Purity 99%		+/- 44.1601	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

S9274 to S9290

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

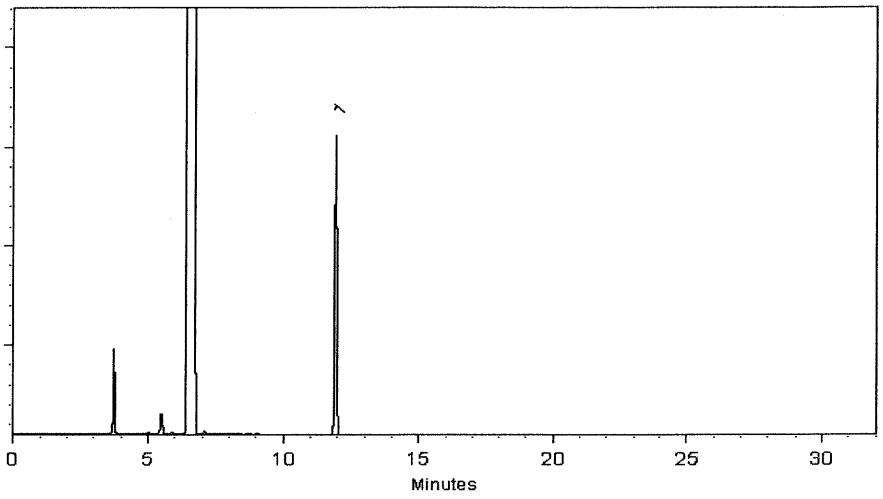
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Russ Bookhamer - Operations Technician I

Date Mixed: 02-Jan-2020 **Balance:** 1128360905

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 06-Jan-2020

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Received on 07/14/20 by CG

Catalog No. : 33913 **Lot No.:** A0161851

Description : SOM01.0 SIM Analysis Standard

SOM01.0 SIM Analysis Standard 2000µg/mL, Methylene chloride, 1mL /ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : May 31, 2026 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

S8793 to S8794

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Methylnaphthalene-d10 **CAS #** 7297-45-2 (Lot EF-135) **Purity** 96%	2,000.6 µg/mL	+/- 18.6049 +/- 91.2724 +/- 101.0370	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	Fluoranthene-d10 **CAS #** 93951-69-0 (Lot PR-20668) **Purity** 98%	2,001.9 µg/mL	+/- 18.6170 +/- 91.3319 +/- 101.1029	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

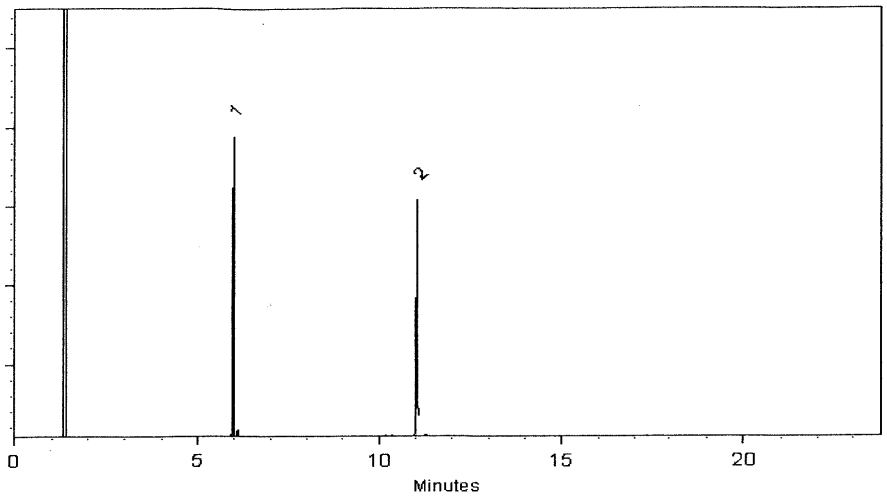
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Katelyn McGinnl - Operations Tech I

Date Mixed: 17-Jun-2020 **Balance:** 1128360905

Fang-Yun Lo - QC Analyst

Date Passed: 19-Jun-2020

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Received on 03/01/21 by CG

S9271 to S9273

Catalog No. : 33913 **Lot No.:** A0168492

Description : SOM01.0 SIM Analysis Standard

SOM01.0 SIM Analysis Standard 2000µg/mL, Methylene chloride, 1mL /ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2026 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Methylnaphthalene-d10 **CAS #** 7297-45-2 (Lot EF-135) **Purity** 96%	2,001.6 µg/mL	+/- 11.7465 +/- 90.1674 +/- 100.0489	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	Fluoranthene-d10 **CAS #** 93951-69-0 (Lot PR-20668) **Purity** 99%	2,008.0 µg/mL	+/- 11.7841 +/- 90.4557 +/- 100.3688	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

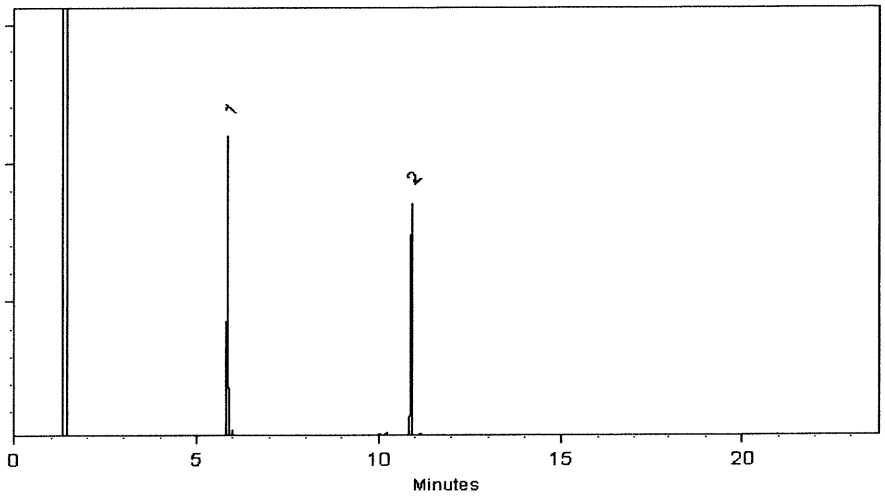
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Sam Moodler - Operations Tech I

Date Mixed: 26-Jan-2021 **Balance:** B345965662

Alexis Shelow - Operations Tech I

Date Passed: 27-Jan-2021

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Received on 08/25/21 by CG S9709 to S9738

Catalog No. : 31087 **Lot No.:** A0173743

Description : Acid Surrogate Mix (4/89 SOW)

Acid Surrogate 10, 000µg/mL, Methanol, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : June 30, 2029 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	2-Fluorophenol	10,013.5 µg/mL	+/- 58.2194 µg/mL	Gravimetric
	CAS # 367-12-4 (Lot STBJ2508)		+/- 292.2275 µg/mL	Unstressed
	Purity 99%		+/- 354.6068 µg/mL	Stressed
2	Phenol-d6	10,050.1 µg/mL	+/- 58.4323 µg/mL	Gravimetric
	CAS # 13127-88-3 (Lot PR-31262)		+/- 293.2963 µg/mL	Unstressed
	Purity 99%		+/- 355.9038 µg/mL	Stressed
3	2,4,6-Tribromophenol	10,044.9 µg/mL	+/- 58.4018 µg/mL	Gravimetric
	CAS # 118-79-6 (Lot MKCJ7664)		+/- 293.1431 µg/mL	Unstressed
	Purity 99%		+/- 355.7179 µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

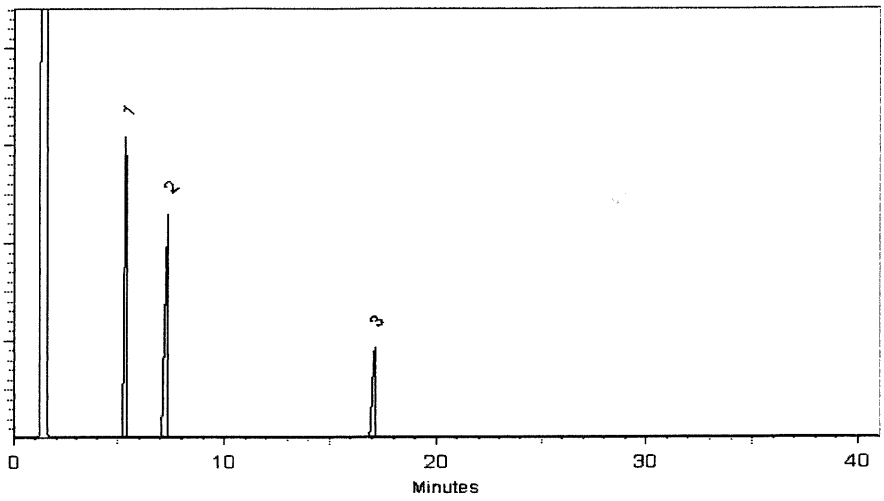
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Aurelia Confer - Operations Tech I

Date Mixed: 23-Jun-2021 **Balance:** B442140311

Marlina Cowan - Operations Tech I

Date Passed: 25-Jun-2021

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Received on 08/12/21 by CG S9899 to S9903

Catalog No. : 555872 **Lot No.:** A0175414

Description : Custom Pentachlorophenol Standard

Custom Pentachlorophenol Standard 25,000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2024 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pentachlorophenol **CAS #** 87-86-5 **Purity** 99% (Lot 210706RSR)	25,072.0 µg/mL	+/- 232.0210 µg/mL +/- 753.6229 µg/mL +/- 906.0356 µg/mL		Gravimetric Unstressed Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Matt Fragassi - Mix Technician **Date Mixed:** 16-Aug-2021 **Balance:** 1128342314

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Received on 03/18/22 by CG S10182 to S10211

Catalog No. : 31850 **Lot No.:** A0176420

Description : 8270 MegaMix®

8270 MegaMix® 500-1000 µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2023 **Storage:** 0°C or colder

Handling: Sonication required. Mix is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Pyridine	1,003.7 µg/mL	+/- 5.8354 µg/mL	Gravimetric
	CAS # 110-86-1 (Lot SHBL0433)		+/- 30.3591 µg/mL	Unstressed
	Purity 99%		+/- 30.3591 µg/mL	Stressed
2	N-Nitrosodimethylamine	1,000.8 µg/mL	+/- 5.8186 µg/mL	Gravimetric
	CAS # 62-75-9 (Lot 210512JLM)		+/- 30.2717 µg/mL	Unstressed
	Purity 99%		+/- 30.2717 µg/mL	Stressed
3	Phenol	1,002.3 µg/mL	+/- 5.8273 µg/mL	Gravimetric
	CAS # 108-95-2 (Lot MKCK1120)		+/- 30.3171 µg/mL	Unstressed
	Purity 99%		+/- 30.3171 µg/mL	Stressed
4	Aniline	1,000.7 µg/mL	+/- 5.8183 µg/mL	Gravimetric
	CAS # 62-53-3 (Lot K22Z462)		+/- 30.2700 µg/mL	Unstressed
	Purity 99%		+/- 30.2700 µg/mL	Stressed
5	Bis(2-chloroethyl)ether	1,001.1 µg/mL	+/- 5.8202 µg/mL	Gravimetric
	CAS # 111-44-4 (Lot SHBL6942)		+/- 30.2801 µg/mL	Unstressed
	Purity 99%		+/- 30.2801 µg/mL	Stressed
6	2-Chlorophenol	1,000.8 µg/mL	+/- 5.8186 µg/mL	Gravimetric
	CAS # 95-57-8 (Lot STBH7290)		+/- 30.2717 µg/mL	Unstressed
	Purity 99%		+/- 30.2717 µg/mL	Stressed
7	1,3-Dichlorobenzene	1,001.7 µg/mL	+/- 5.8241 µg/mL	Gravimetric
	CAS # 541-73-1 (Lot BCBZ7498)		+/- 30.3003 µg/mL	Unstressed
	Purity 99%		+/- 30.3003 µg/mL	Stressed

8	1,4-Dichlorobenzene		1,001.8	µg/mL	+/-	5.8244	µg/mL	Gravimetric
	CAS # 106-46-7	(Lot MKBS4401V)			+/-	30.3020	µg/mL	Unstressed
	Purity 99%				+/-	30.3020	µg/mL	Stressed
9	Benzyl alcohol		1,000.7	µg/mL	+/-	5.8183	µg/mL	Gravimetric
	CAS # 100-51-6	(Lot SHBK5943)			+/-	30.2700	µg/mL	Unstressed
	Purity 99%				+/-	30.2700	µg/mL	Stressed
10	1,2-Dichlorobenzene		1,000.9	µg/mL	+/-	5.8193	µg/mL	Gravimetric
	CAS # 95-50-1	(Lot SHBK7741)			+/-	30.2751	µg/mL	Unstressed
	Purity 99%				+/-	30.2751	µg/mL	Stressed
11	2-Methylphenol (o-cresol)		1,000.8	µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 95-48-7	(Lot SHBH6379)			+/-	30.2734	µg/mL	Unstressed
	Purity 99%				+/-	30.2734	µg/mL	Stressed
12	2,2'-oxybis(1-chloropropane)		1,001.5	µg/mL	+/-	5.8228	µg/mL	Gravimetric
	CAS # 108-60-1	(Lot 12308600)			+/-	30.2936	µg/mL	Unstressed
	Purity 99%				+/-	30.2936	µg/mL	Stressed
13	3-Methylphenol (m-cresol)		501.7	µg/mL	+/-	2.9238	µg/mL	Gravimetric
	CAS # 108-39-4	(Lot SHBD0627V)			+/-	15.1775	µg/mL	Unstressed
	Purity 99%				+/-	15.1775	µg/mL	Stressed
14	4-Methylphenol (p-cresol)		502.2	µg/mL	+/-	2.9264	µg/mL	Gravimetric
	CAS # 106-44-5	(Lot SHBL4411)			+/-	15.1909	µg/mL	Unstressed
	Purity 99%				+/-	15.1909	µg/mL	Stressed
15	N-Nitroso-di-n-propylamine		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 621-64-7	(Lot 2D5VJ)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed
16	Hexachloroethane		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 67-72-1	(Lot ENSIK)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
17	Nitrobenzene		1,001.4	µg/mL	+/-	5.8225	µg/mL	Gravimetric
	CAS # 98-95-3	(Lot MKCK4267)			+/-	30.2919	µg/mL	Unstressed
	Purity 99%				+/-	30.2919	µg/mL	Stressed
18	Isophorone		1,002.2	µg/mL	+/-	5.8270	µg/mL	Gravimetric
	CAS # 78-59-1	(Lot MKCC9506)			+/-	30.3154	µg/mL	Unstressed
	Purity 99%				+/-	30.3154	µg/mL	Stressed
19	2-Nitrophenol		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 88-75-5	(Lot BCCB2407)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
20	2,4-Dimethylphenol		1,002.5	µg/mL	+/-	5.8286	µg/mL	Gravimetric
	CAS # 105-67-9	(Lot 10165155)			+/-	30.3238	µg/mL	Unstressed
	Purity 99%				+/-	30.3238	µg/mL	Stressed
21	Bis(2-chloroethoxy)methane		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 111-91-1	(Lot 10991500)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
22	2,4-Dichlorophenol		1,000.2	µg/mL	+/-	5.8154	µg/mL	Gravimetric
	CAS # 120-83-2	(Lot BCBZ6787)			+/-	30.2549	µg/mL	Unstressed
	Purity 99%				+/-	30.2549	µg/mL	Stressed
23	1,2,4-Trichlorobenzene		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 120-82-1	(Lot SHBM0526)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed

24	Naphthalene		1,000.2	µg/mL	+/-	5.8154	µg/mL	Gravimetric
	CAS # 91-20-3	(Lot MKCH0219)			+/-	30.2549	µg/mL	Unstressed
	Purity 99%				+/-	30.2549	µg/mL	Stressed
25	4-Chloroaniline		1,001.1	µg/mL	+/-	5.8202	µg/mL	Gravimetric
	CAS # 106-47-8	(Lot BCBJ1580V)			+/-	30.2801	µg/mL	Unstressed
	Purity 99%				+/-	30.2801	µg/mL	Stressed
26	Hexachlorobutadiene		1,000.4	µg/mL	+/-	5.8162	µg/mL	Gravimetric
	CAS # 87-68-3	(Lot N21G023)			+/-	30.2591	µg/mL	Unstressed
	Purity 98%				+/-	30.2591	µg/mL	Stressed
27	4-Chloro-3-methylphenol		1,000.8	µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 59-50-7	(Lot STBC7309V)			+/-	30.2734	µg/mL	Unstressed
	Purity 99%				+/-	30.2734	µg/mL	Stressed
28	2-Methylnaphthalene		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 91-57-6	(Lot STBG8884)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
29	1-Methylnaphthalene		1,000.3	µg/mL	+/-	5.8157	µg/mL	Gravimetric
	CAS # 90-12-0	(Lot 5234.00-3)			+/-	30.2566	µg/mL	Unstressed
	Purity 99%				+/-	30.2566	µg/mL	Stressed
30	Hexachlorocyclopentadiene		1,001.2	µg/mL	+/-	5.8209	µg/mL	Gravimetric
	CAS # 77-47-4	(Lot 0012015)			+/-	30.2835	µg/mL	Unstressed
	Purity 99%				+/-	30.2835	µg/mL	Stressed
31	2,4,6-Trichlorophenol		1,002.2	µg/mL	+/-	5.8267	µg/mL	Gravimetric
	CAS # 88-06-2	(Lot STBJ5914)			+/-	30.3137	µg/mL	Unstressed
	Purity 99%				+/-	30.3137	µg/mL	Stressed
32	2,4,5-Trichlorophenol		1,000.4	µg/mL	+/-	5.8162	µg/mL	Gravimetric
	CAS # 95-95-4	(Lot FHN01)			+/-	30.2591	µg/mL	Unstressed
	Purity 98%				+/-	30.2591	µg/mL	Stressed
33	2-Chloronaphthalene		1,001.4	µg/mL	+/-	5.8222	µg/mL	Gravimetric
	CAS # 91-58-7	(Lot TWYRD)			+/-	30.2902	µg/mL	Unstressed
	Purity 99%				+/-	30.2902	µg/mL	Stressed
34	2-Nitroaniline		1,001.7	µg/mL	+/-	5.8238	µg/mL	Gravimetric
	CAS # 88-74-4	(Lot MKCJ8895)			+/-	30.2986	µg/mL	Unstressed
	Purity 99%				+/-	30.2986	µg/mL	Stressed
35	1,4-Dinitrobenzene		1,000.8	µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 100-25-4	(Lot STBF8844V)			+/-	30.2734	µg/mL	Unstressed
	Purity 99%				+/-	30.2734	µg/mL	Stressed
36	Acenaphthylene		1,000.1	µg/mL	+/-	5.8149	µg/mL	Gravimetric
	CAS # 208-96-8	(Lot P06V)			+/-	30.2526	µg/mL	Unstressed
	Purity 98%				+/-	30.2526	µg/mL	Stressed
37	1,3-Dinitrobenzene		1,000.4	µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 99-65-0	(Lot 1-DXX-24-1)			+/-	30.2616	µg/mL	Unstressed
	Purity 99%				+/-	30.2616	µg/mL	Stressed
38	Dimethylphthalate		1,000.9	µg/mL	+/-	5.8193	µg/mL	Gravimetric
	CAS # 131-11-3	(Lot 10117699)			+/-	30.2751	µg/mL	Unstressed
	Purity 99%				+/-	30.2751	µg/mL	Stressed
39	2,6-Dinitrotoluene		1,000.2	µg/mL	+/-	5.8154	µg/mL	Gravimetric
	CAS # 606-20-2	(Lot BCBB8606)			+/-	30.2549	µg/mL	Unstressed
	Purity 99%				+/-	30.2549	µg/mL	Stressed

40	1,2-Dinitrobenzene		1,000.0	µg/mL	+/-	5.8141	µg/mL	Gravimetric
	CAS # 528-29-0	(Lot MKCH6067)			+/-	30.2482	µg/mL	Unstressed
	Purity 99%				+/-	30.2482	µg/mL	Stressed
41	Acenaphthene		1,002.4	µg/mL	+/-	5.8283	µg/mL	Gravimetric
	CAS # 83-32-9	(Lot MKCN0610)			+/-	30.3221	µg/mL	Unstressed
	Purity 99%				+/-	30.3221	µg/mL	Stressed
42	3-Nitroaniline		1,000.9	µg/mL	+/-	5.8196	µg/mL	Gravimetric
	CAS # 99-09-2	(Lot MKCH5457)			+/-	30.2768	µg/mL	Unstressed
	Purity 99%				+/-	30.2768	µg/mL	Stressed
43	2,4-Dinitrophenol		1,002.2	µg/mL	+/-	5.8267	µg/mL	Gravimetric
	CAS # 51-28-5	(Lot STBH7564)			+/-	30.3137	µg/mL	Unstressed
	Purity 99%				+/-	30.3137	µg/mL	Stressed
44	Dibenzofuran		1,001.7	µg/mL	+/-	5.8238	µg/mL	Gravimetric
	CAS # 132-64-9	(Lot MKCN1772)			+/-	30.2986	µg/mL	Unstressed
	Purity 99%				+/-	30.2986	µg/mL	Stressed
45	2,4-Dinitrotoluene		1,001.6	µg/mL	+/-	5.8231	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/-	30.2952	µg/mL	Unstressed
	Purity 99%				+/-	30.2952	µg/mL	Stressed
46	4-Nitrophenol		1,000.7	µg/mL	+/-	5.8183	µg/mL	Gravimetric
	CAS # 100-02-7	(Lot MKCF6111)			+/-	30.2700	µg/mL	Unstressed
	Purity 99%				+/-	30.2700	µg/mL	Stressed
47	2,3,4,6-Tetrachlorophenol		1,000.9	µg/mL	+/-	5.8196	µg/mL	Gravimetric
	CAS # 58-90-2	(Lot PR-30126)			+/-	30.2768	µg/mL	Unstressed
	Purity 99%				+/-	30.2768	µg/mL	Stressed
48	2,3,5,6-Tetrachlorophenol		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 935-95-5	(Lot 012016)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
49	Fluorene		1,002.6	µg/mL	+/-	5.8289	µg/mL	Gravimetric
	CAS # 86-73-7	(Lot 094650L18G)			+/-	30.3255	µg/mL	Unstressed
	Purity 99%				+/-	30.3255	µg/mL	Stressed
50	4-Chlorophenyl phenyl ether		1,001.8	µg/mL	+/-	5.8244	µg/mL	Gravimetric
	CAS # 7005-72-3	(Lot MKCN1186)			+/-	30.3020	µg/mL	Unstressed
	Purity 99%				+/-	30.3020	µg/mL	Stressed
51	Diethylphthalate		1,000.9	µg/mL	+/-	5.8193	µg/mL	Gravimetric
	CAS # 84-66-2	(Lot BCCD3396)			+/-	30.2751	µg/mL	Unstressed
	Purity 99%				+/-	30.2751	µg/mL	Stressed
52	4-Nitroaniline		1,000.9	µg/mL	+/-	5.8196	µg/mL	Gravimetric
	CAS # 100-01-6	(Lot RP210713)			+/-	30.2768	µg/mL	Unstressed
	Purity 99%				+/-	30.2768	µg/mL	Stressed
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)		1,002.2	µg/mL	+/-	5.8270	µg/mL	Gravimetric
	CAS # 534-52-1	(Lot RP210716)			+/-	30.3154	µg/mL	Unstressed
	Purity 99%				+/-	30.3154	µg/mL	Stressed
54	Diphenylamine		1,000.6	µg/mL	+/-	5.8173	µg/mL	Gravimetric
	CAS # 122-39-4	(Lot MKBN8295V)			+/-	30.2650	µg/mL	Unstressed
	Purity 99%				+/-	30.2650	µg/mL	Stressed
55	Azobenzene		1,001.2	µg/mL	+/-	5.8212	µg/mL	Gravimetric
	CAS # 103-33-3	(Lot BCCB8438)			+/-	30.2852	µg/mL	Unstressed
	Purity 99%				+/-	30.2852	µg/mL	Stressed

56	4-Bromophenyl phenyl ether		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 101-55-3	(Lot STBB9729V)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
57	Hexachlorobenzene		1,000.2	µg/mL	+/-	5.8154	µg/mL	Gravimetric
	CAS # 118-74-1	(Lot SL210804)			+/-	30.2549	µg/mL	Unstressed
	Purity 99%				+/-	30.2549	µg/mL	Stressed
58	Pentachlorophenol		1,000.5	µg/mL	+/-	5.8170	µg/mL	Gravimetric
	CAS # 87-86-5	(Lot 210706RSR)			+/-	30.2633	µg/mL	Unstressed
	Purity 99%				+/-	30.2633	µg/mL	Stressed
59	Phenanthrene		1,000.8	µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 85-01-8	(Lot MKCL7390)			+/-	30.2717	µg/mL	Unstressed
	Purity 99%				+/-	30.2717	µg/mL	Stressed
60	Anthracene		1,001.9	µg/mL	+/-	5.8254	µg/mL	Gravimetric
	CAS # 120-12-7	(Lot MKCM0015)			+/-	30.3070	µg/mL	Unstressed
	Purity 99%				+/-	30.3070	µg/mL	Stressed
61	Carbazole		1,000.7	µg/mL	+/-	5.8180	µg/mL	Gravimetric
	CAS # 86-74-8	(Lot 10812100)			+/-	30.2684	µg/mL	Unstressed
	Purity 99%				+/-	30.2684	µg/mL	Stressed
62	Di-n-butylphthalate		1,001.6	µg/mL	+/-	5.8231	µg/mL	Gravimetric
	CAS # 84-74-2	(Lot MKCL9573)			+/-	30.2952	µg/mL	Unstressed
	Purity 99%				+/-	30.2952	µg/mL	Stressed
63	Fluoranthene		1,000.4	µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 206-44-0	(Lot MKCF7378)			+/-	30.2616	µg/mL	Unstressed
	Purity 99%				+/-	30.2616	µg/mL	Stressed
64	Pyrene		1,001.1	µg/mL	+/-	5.8202	µg/mL	Gravimetric
	CAS # 129-00-0	(Lot BCCB9880)			+/-	30.2801	µg/mL	Unstressed
	Purity 99%				+/-	30.2801	µg/mL	Stressed
65	Benzyl butyl phthalate		1,000.1	µg/mL	+/-	5.8147	µg/mL	Gravimetric
	CAS # 85-68-7	(Lot MKCM1987)			+/-	30.2516	µg/mL	Unstressed
	Purity 99%				+/-	30.2516	µg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,000.9	µg/mL	+/-	5.8196	µg/mL	Gravimetric
	CAS # 103-23-1	(Lot MKCM1988)			+/-	30.2768	µg/mL	Unstressed
	Purity 99%				+/-	30.2768	µg/mL	Stressed
67	Benz(a)anthracene		1,000.7	µg/mL	+/-	5.8184	µg/mL	Gravimetric
	CAS # 56-55-3	(Lot RP210125)			+/-	30.2708	µg/mL	Unstressed
	Purity 96%				+/-	30.2708	µg/mL	Stressed
68	Chrysene		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 218-01-9	(Lot STBJ1016)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,002.1	µg/mL	+/-	5.8260	µg/mL	Gravimetric
	CAS # 117-81-7	(Lot MKCJ1159)			+/-	30.3104	µg/mL	Unstressed
	Purity 99%				+/-	30.3104	µg/mL	Stressed
70	Di-n-octyl phthalate		1,001.4	µg/mL	+/-	5.8222	µg/mL	Gravimetric
	CAS # 117-84-0	(Lot 11004300)			+/-	30.2902	µg/mL	Unstressed
	Purity 99%				+/-	30.2902	µg/mL	Stressed
71	Benzo(b)fluoranthene		1,000.9	µg/mL	+/-	5.8193	µg/mL	Gravimetric
	CAS # 205-99-2	(Lot 012020B)			+/-	30.2751	µg/mL	Unstressed
	Purity 99%				+/-	30.2751	µg/mL	Stressed

72	Benzo(k)fluoranthene		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012019K)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
73	Benzo(a)pyrene		1,000.6	µg/mL	+/-	5.8173	µg/mL	Gravimetric
	CAS # 50-32-8	(Lot Z8BKF)			+/-	30.2650	µg/mL	Unstressed
	Purity 99%				+/-	30.2650	µg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,002.3	µg/mL	+/-	5.8277	µg/mL	Gravimetric
	CAS # 193-39-5	(Lot 1-RAK-33-4)			+/-	30.3188	µg/mL	Unstressed
	Purity 99%				+/-	30.3188	µg/mL	Stressed
75	Dibenz(a,h)anthracene		1,002.3	µg/mL	+/-	5.8273	µg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/-	30.3171	µg/mL	Unstressed
	Purity 99%				+/-	30.3171	µg/mL	Stressed
76	Benzo(g,h,i)perylene		1,008.8	µg/mL	+/-	5.8651	µg/mL	Gravimetric
	CAS # 191-24-2	(Lot 8GFYJ)			+/-	30.5137	µg/mL	Unstressed
	Purity 99%				+/-	30.5137	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

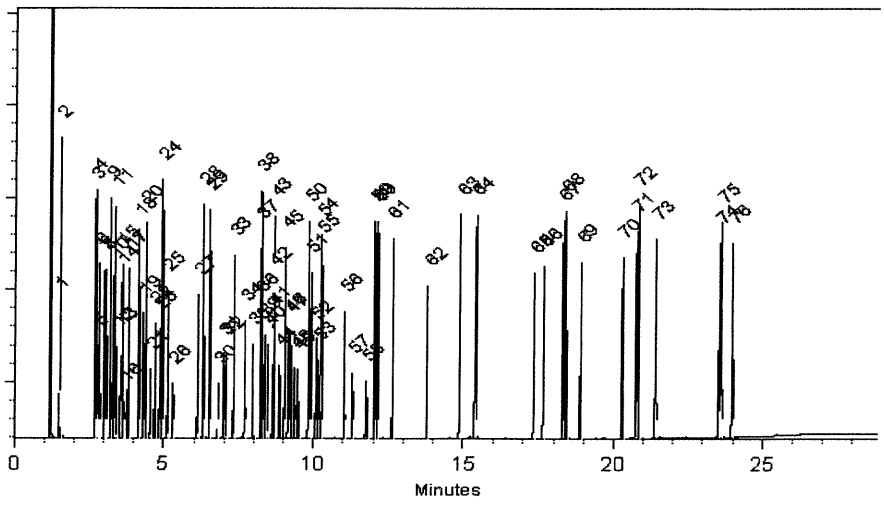
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

Temp. Program:
80°C (hold 0.1 min.) to 330°C
@ 9.6°C/min. (hold 2.86 min.)

Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cathleen Soltis - Mix Technician

Date Mixed: 14-Sep-2021 **Balance:** 1128360905

Alexis Shelow - Operations Tech I

Date Passed: 23-Sep-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Received by CG on 11/23/21 S10066 to S10095

Catalog No. : 555224 **Lot No.:** A0178679

Description : Custom 8270 Plus Standard #2

Custom 8270 Plus Standard #2 1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : November 30, 2023 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,2,4,5-Tetrachlorobenzene **CAS #** 95-94-3 (Lot MKCG5992) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
2	Acetophenone **CAS #** 98-86-2 (Lot STBH8205) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
3	Benzaldehyde **CAS #** 100-52-7 (Lot SHBG8690V) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
4	Benzoic acid **CAS #** 65-85-0 (Lot MKCL7479) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
5	Biphenyl **CAS #** 92-52-4 (Lot MKCJ6240) **Purity** 99%	1,005.0 µg/mL	+/- 5.969395 µg/mL +/- 20.102261 µg/mL +/- 45.053875 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Lane Kibe - Mix Technician **Date Mixed:** 18-Nov-2021 **Balance:** B345965662

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

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Received by CG on 11/23/21 S10066 to S10095

Catalog No. : 555224 **Lot No.:** A0178679

Description : Custom 8270 Plus Standard #2

Custom 8270 Plus Standard #2 1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : November 30, 2023 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,2,4,5-Tetrachlorobenzene **CAS #** 95-94-3 (Lot MKCG5992) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
2	Acetophenone **CAS #** 98-86-2 (Lot STBH8205) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
3	Benzaldehyde **CAS #** 100-52-7 (Lot SHBG8690V) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
4	Benzoic acid **CAS #** 65-85-0 (Lot MKCL7479) **Purity** 99%	1,001.0 µg/mL	+/- 5.945637 µg/mL +/- 20.022252 µg/mL +/- 44.874556 µg/mL	Gravimetric Unstressed Stressed
5	Biphenyl **CAS #** 92-52-4 (Lot MKCJ6240) **Purity** 99%	1,005.0 µg/mL	+/- 5.969395 µg/mL +/- 20.102261 µg/mL +/- 45.053875 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Lane Kibe - Mix Technician **Date Mixed:** 18-Nov-2021 **Balance:** B345965662

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Received on 07/05/22 by CG S10542 to S10571

Catalog No. : 31853 **Lot No.:** A0179300

Description : 1,4-dioxane

1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2026 **Storage:** 0°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane	2,004.0 µg/mL	+/- 11.7606	µg/mL	Gravimetric
	CAS # 123-91-1 (Lot SHBM9675)		+/- 42.9357	µg/mL	Unstressed
	Purity 99%		+/- 44.1822	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

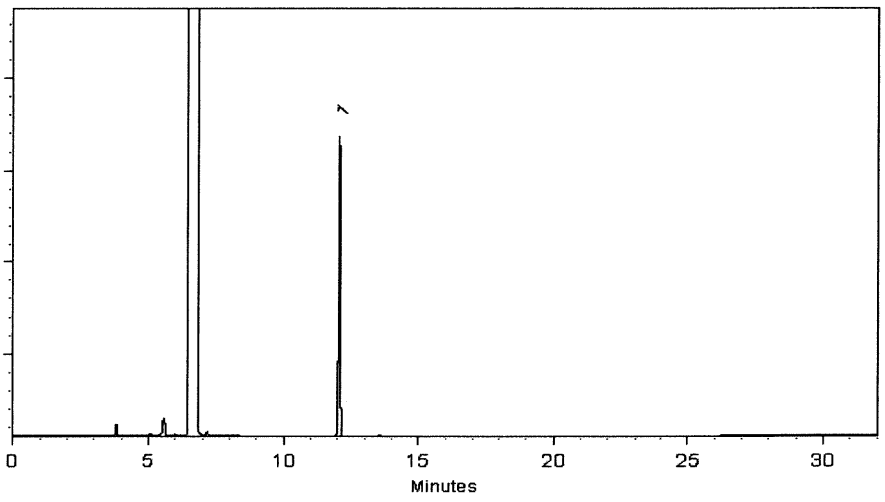
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Ashley Frantz - Quoting Technician

Date Mixed: 08-Dec-2021 **Balance:** B442140311

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 10-Dec-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

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Received on 07/05/22 by CG S10512 to S10541

Catalog No. : 31206 **Lot No.:** A0180950

Description : SV Internal Standard Mix 2mg/ml

SV Internal Standard Mix 2mg/ml 2000 µg/ml, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,4-Dichlorobenzene-d4 **CAS #** 3855-82-1 (Lot PR-30447) **Purity** 99%	2,019.1 µg/mL	+/- 11.7390 µg/mL +/- 90.9400 µg/mL +/- 100.9091 µg/mL	Gravimetric Unstressed Stressed
2	Naphthalene-d8 **CAS #** 1146-65-2 (Lot M-2180) **Purity** 99%	2,018.9 µg/mL	+/- 11.7379 µg/mL +/- 90.9310 µg/mL +/- 100.8991 µg/mL	Gravimetric Unstressed Stressed
3	Acenaphthene-d10 **CAS #** 15067-26-2 (Lot PR-30913) **Purity** 99%	2,018.8 µg/mL	+/- 11.7375 µg/mL +/- 90.9280 µg/mL +/- 100.8958 µg/mL	Gravimetric Unstressed Stressed
4	Phenanthrene-d10 **CAS #** 1517-22-2 (Lot PR-32303) **Purity** 99%	2,018.4 µg/mL	+/- 11.7352 µg/mL +/- 90.9099 µg/mL +/- 100.8758 µg/mL	Gravimetric Unstressed Stressed
5	Chrysene-d12 **CAS #** 1719-03-5 (Lot PR-30486) **Purity** 99%	2,018.7 µg/mL	+/- 11.7367 µg/mL +/- 90.9220 µg/mL +/- 100.8891 µg/mL	Gravimetric Unstressed Stressed
6	Perylene-d12 **CAS #** 1520-96-3 (Lot PR-31716) **Purity** 99%	2,019.9 µg/mL	+/- 11.7437 µg/mL +/- 90.9760 µg/mL +/- 100.9491 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

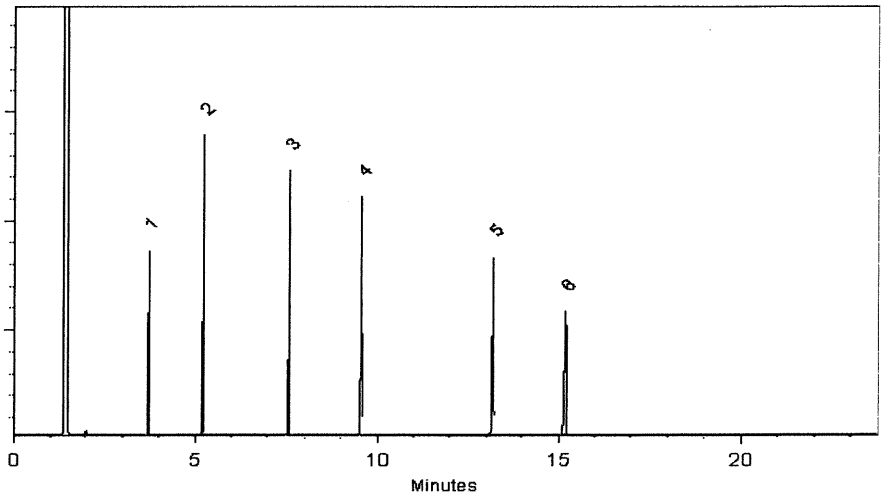
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brittany Federinko - Operations Tech I

Date Mixed: 24-Jan-2022 **Balance:** 1128360905

Marlina Cowan - Operations Tech I

Date Passed: 27-Jan-2022

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Received on 07/05/22 by CG S10512 to S10541

Catalog No. : 31206 **Lot No.:** A0180950

Description : SV Internal Standard Mix 2mg/ml

SV Internal Standard Mix 2mg/ml 2000 µg/ml, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,4-Dichlorobenzene-d4 **CAS #** 3855-82-1 (Lot PR-30447) **Purity** 99%	2,019.1 µg/mL	+/- 11.7390 µg/mL +/- 90.9400 µg/mL +/- 100.9091 µg/mL	Gravimetric Unstressed Stressed
2	Naphthalene-d8 **CAS #** 1146-65-2 (Lot M-2180) **Purity** 99%	2,018.9 µg/mL	+/- 11.7379 µg/mL +/- 90.9310 µg/mL +/- 100.8991 µg/mL	Gravimetric Unstressed Stressed
3	Acenaphthene-d10 **CAS #** 15067-26-2 (Lot PR-30913) **Purity** 99%	2,018.8 µg/mL	+/- 11.7375 µg/mL +/- 90.9280 µg/mL +/- 100.8958 µg/mL	Gravimetric Unstressed Stressed
4	Phenanthrene-d10 **CAS #** 1517-22-2 (Lot PR-32303) **Purity** 99%	2,018.4 µg/mL	+/- 11.7352 µg/mL +/- 90.9099 µg/mL +/- 100.8758 µg/mL	Gravimetric Unstressed Stressed
5	Chrysene-d12 **CAS #** 1719-03-5 (Lot PR-30486) **Purity** 99%	2,018.7 µg/mL	+/- 11.7367 µg/mL +/- 90.9220 µg/mL +/- 100.8891 µg/mL	Gravimetric Unstressed Stressed
6	Perylene-d12 **CAS #** 1520-96-3 (Lot PR-31716) **Purity** 99%	2,019.9 µg/mL	+/- 11.7437 µg/mL +/- 90.9760 µg/mL +/- 100.9491 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

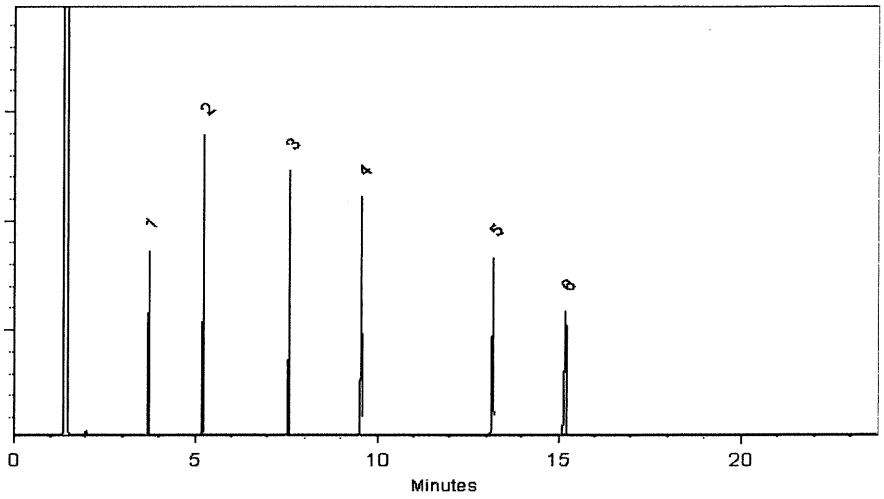
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brittany Federinko - Operations Tech I

Date Mixed: 24-Jan-2022 **Balance:** 1128360905

Marlina Cowan - Operations Tech I

Date Passed: 27-Jan-2022

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Received on 03/18/22 by CG S10242 to S10247

Catalog No. : 31615 **Lot No.:** A0182667

Description : GC/MS Tuning Mixture

GC/MS Tuning Mixture 1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2025 **Storage:** 10°C or colder

Handling: Contains carcinogen/reproductive toxin. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Pentachlorophenol **CAS #** 87-86-5 (Lot 211229RSR) **Purity** 99%	1,003.6 µg/mL	+/- 5.8897 µg/mL +/- 45.7132 µg/mL +/- 66.0037 µg/mL	Gravimetric Unstressed Stressed
2	DFTPP (Decafluorotriphenylphosphine) **CAS #** 5074-71-5 (Lot Q117-147) **Purity** 95%	1,006.6 µg/mL	+/- 5.9074 µg/mL +/- 45.8508 µg/mL +/- 66.2023 µg/mL	Gravimetric Unstressed Stressed
3	Benzidine **CAS #** 92-87-5 (Lot 211228JLM) **Purity** 99%	1,008.4 µg/mL	+/- 5.9179 µg/mL +/- 45.9318 µg/mL +/- 66.3193 µg/mL	Gravimetric Unstressed Stressed
4	4,4'-DDT **CAS #** 50-29-3 (Lot 210916JLM) **Purity** 99%	1,007.6 µg/mL	+/- 5.9132 µg/mL +/- 45.8954 µg/mL +/- 66.2667 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

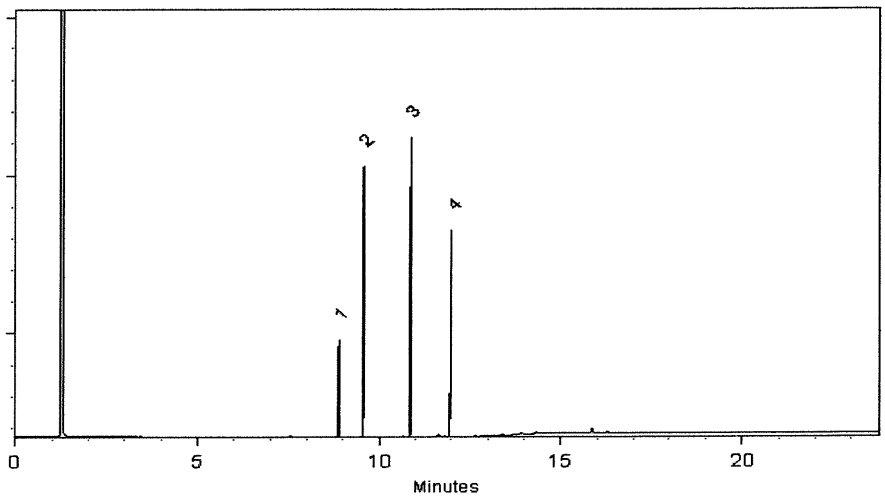
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Morgan Craighead - Mix Technician

Date Mixed: 08-Mar-2022 **Balance:** B345965662

Merlina Cowan - Operations Tech I

Date Passed: 10-Mar-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

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Received on 08/16/22 by CG
S10595 to S10624

Catalog No. : 31086 **Lot No.:** A0186198

Description : B/N Surrogate Mix (4/89 SOW)

Base Neutral Surrogate 5000µg/mL, Methylene Chloride, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : May 31, 2028 **Storage:** 10°C or colder

Handling: Sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Nitrobenzene-d5 **CAS #** 4165-60-0 (Lot PR-29940A) **Purity** 99%	5,019.7 µg/mL	+/- 29.1848 µg/mL +/- 226.0888 µg/mL +/- 250.8734 µg/mL	Gravimetric Unstressed Stressed
2	2-Fluorobiphenyl **CAS #** 321-60-8 (Lot 00021384) **Purity** 99%	5,011.8 µg/mL	+/- 29.1387 µg/mL +/- 225.7322 µg/mL +/- 250.4778 µg/mL	Gravimetric Unstressed Stressed
3	p-Terphenyl-d14 **CAS #** 1718-51-0 (Lot PR-30504) **Purity** 99%	5,015.0 µg/mL	+/- 29.1576 µg/mL +/- 225.8786 µg/mL +/- 250.6402 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Tech Tips:
Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol.

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

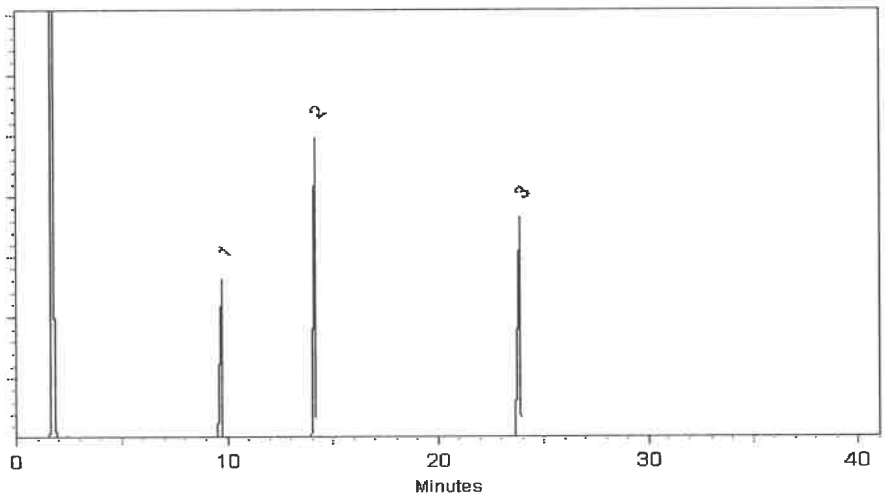
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Jess Hoy - Operations Tech I

Date Mixed: 10-Jun-2022 **Balance:** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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Received on 08/23/22 by CG S10648 to S10677

Catalog No. : 555223 **Lot No.:** A0188685

Description : Custom 8270 Plus Standard #1

Custom 8270 Plus Standard #1 1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2024 **Storage:** 10°C or colder

Handling: This product is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	3,3'-Dichlorobenzidine **CAS #** 91-94-1 (Lot 220223RSR) **Purity** 99%	1,005.0 µg/mL	+/- 5.9694 +/- 46.1808 +/- 47.3621	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	Atrazine **CAS #** 1912-24-9 (Lot PI8FG) **Purity** 99%	1,001.0 µg/mL	+/- 5.9456 +/- 45.9970 +/- 47.1736	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	Benzidine **CAS #** 92-87-5 (Lot 220511RSR) **Purity** 99%	1,004.0 µg/mL	+/- 5.9635 +/- 46.1348 +/- 47.3150	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
4	epsilon-Caprolactam **CAS #** 105-60-2 (Lot I16X016) **Purity** 99%	1,001.0 µg/mL	+/- 5.9456 +/- 45.9970 +/- 47.1736	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Cathleen Soltis

Cathleen Soltis - Mix Technician

Date Mixed: 17-Aug-2022 **Balance:** 1128353505

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

PHARMCO
by Greenfield Global

CERTIFICATE OF ANALYSIS

Product Name	Sodium Hydroxide
Grade	Reagent ACS Grade
Catalog #	289000ACS
Item #	101007
Batch #	220601-B017657
Date of Manufacture:	04/06/2022
Recommended Retest Date:	04/05/2025
Customer PO #	6051379
Packaging Type	Drum Fiber 50 Kg

TEST	MONO-GRAPH	SPECIFICATION	RESULT	UNITS
Assay	ACS	NLT 97.0%	98.7	%
Calcium (Ca)	ACS	0.005%, max	LT 0.005%	N/A
Chloride (Cl)	ACS	0.005% max.	LT 0.005%	N/A
Heavy Metals (as Ag)	ACS	0.002% max	LT 0.002%	N/A
Iron (Fe)	ACS	0.001% max.	LT 0.001%	N/A
Magnesium (Mg)	ACS	0.002% max.	LT 0.002%	N/A
Mercury (Hg)	ACS	0.1 ppm max.	LT 0.1 ppm	N/A
Nickel (Ni)	ACS	0.001%, max	LT 0.001%	N/A
Nitrogen Compounds (as N)	ACS	0.001% max.	LT 0.001%	N/A
Phosphate (PO4)	ACS	0.001% max.	LT 0.001%	N/A
Potassium (K)	ACS	0.02% max.	LT 0.02%	N/A
Sodium Carbonate (Na2CO3)	ACS	1.0% max.	0.6	%
Sulfate (SO4)	ACS	0.003% max.	LT 0.003%	N/A

Certification and Compliance Statements

This product is not derived, nor does it come in contact with, any materials derived from bovine or other animal sources.

E3382

Rec'd by RP on 08/03/22

Methylene Chloride
ULTRA RESI-ANALYZED
For Organic Residue Analysis
(dichloromethane)

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 22G1962004
Manufactured Date: 2022-06-22
Expiration Date: 2023-09-21
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	2
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

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

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

Recd. by RF on 9/13/22

E 3397

James Ethier
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

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

ALLAN CHEMICAL CORPORATION
235 MARGARET KING AVENUE
RINGWOOD, NEW JERSEY, 07456
(973) 962-6016 • INFO@ALLANCHEM.COM
WWW.ALLANCHEM.COM

MIRADOR 201, COL. MIRADOR
MONTERREY, N.L. MÉXICO
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:**	**OCT/28/2021**
LOT NUMBER :	**139404**		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na_2SO_4)	Min. 99.0%	99.8 %
pH of a 5% solution at 25ºC	5.2 - 9.2	6.0
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%	0.002 %
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%	0.2 %
Retained on US Standard No. 60 sieve	Min. 94%	97.6 %
Through US Standard No. 60 sieve	Max. 5%	2.1 %
Through US Standard No. 100 sieve	Max. 10%	0.2 %

COMMENTS

QC: PhC Irma Belmares

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

RE-02-01, Ed. 3

E 3412

Recd. by RP on 10/13/22

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 22E1562001
Manufactured Date: 2022-05-03
Expiration Date: 2025-05-02
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	≥ 99.4 %	99.8 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	< 1.0 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	≤ 0.3	0.1
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 Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

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

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

Recd. by RP on 11/3/22

E3425

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Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 22E1562001
Manufactured Date: 2022-05-03
Expiration Date: 2025-05-02
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	≥ 99.4 %	99.8 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	< 1.0 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	≤ 0.3	0.1
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 Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

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

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

Recd. by RP on 11/16/22

E 3430

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Methylene Chloride
ULTRA RESI-ANALYZED
For Organic Residue Analysis
(dichloromethane)

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 22I2962012
Manufactured Date: 2022-09-10
Expiration Date: 2023-12-10
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	2
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	2
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	< 0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	< 5 ppm
Water (by KF, coulometric)	≤ 0.02 %	0.01 %

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

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

E 3432

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Methylene Chloride
ULTRA RESI-ANALYZED
For Organic Residue Analysis
(dichloromethane)

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 22J1962006
Manufactured Date: 2022-09-23
Expiration Date: 2023-12-23
Revision No.: 0

Certificate of Analysis

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	6
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	< 5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

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

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

E 3446

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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

M5037-38-39-40
ND

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 0000250349
Manufactured Date: 2019/12/17
Retest Date: 2024/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (H_2SO_4)	95.0 - 98.0 %	96.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Substances Reducing Permanganate (as SO_2)	<= 2 ppm	< 2
Ammonium (NH_4)	<= 1 ppm	< 1
Chloride (Cl)	<= 0.1 ppm	< 0.1
Nitrate (NO_3)	<= 0.2 ppm	< 0.1
Phosphate (PO_4)	<= 0.5 ppm	< 0.1
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.2
Arsenic and Antimony (as As)	<= 4 ppb	< 2
Trace Impurities - Barium (Ba)	<= 10.0 ppb	< 1.0
Trace Impurities - Beryllium (Be)	<= 10.0 ppb	< 1.0
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 10.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 2.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	2.9
Trace Impurities - Chromium (Cr)	<= 6.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 0.5 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 10.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 10.0 ppb	< 10.0
Trace Impurities - Gold (Au)	<= 10.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 500 ppb	< 100

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
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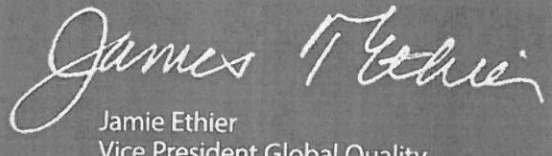
Material No.: 9673-33
Batch No.: 0000250349

Test	Specification	Result
Trace Impurities - Iron (Fe)	<= 50.0 ppb	4.1
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 10.0 ppb	< 1.0
Trace Impurities - Magnesium (Mg)	<= 7.0 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)	<= 2.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 10.0 ppb	< 1.0
Trace Impurities - Potassium (K)	<= 500.0 ppb	< 2.0
Trace Impurities - Selenium (Se)	<= 50.0 ppb	22.9
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 500.0 ppb	2.7
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 10.0 ppb	< 5.0
Trace Impurities - Thallium (Tl)	<= 20.0 ppb	< 5.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 10.0 ppb	< 1.0
Trace Impurities - Vanadium (V)	<= 10.0 ppb	< 1.0
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities - Zirconium (Zr)	<= 10.0 ppb	< 1.0

For Laboratory, Research or Manufacturing Use

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



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