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

Prep Standard - Chemical Standard Summary

Order ID : Q3688

Test : SVOC-SIMGroup1

Prepbatch ID : PB170718,PB170720,PB170722,PB170724,PB170742,

Sequence ID/Qc Batch ID: BN120225,BN120525,BN112625

Standard ID :
EP2657,EP2663,SP6830,SP6868,SP6877,SP6878,SP6879,SP6880,SP6881,SP6882,SP6883,SP6907,SP6933,SP6934,SP6935,SP6936,

Chemical ID :
1ul/100ul sample,E3875,E3942,E3964,E3973,E3980,E3986,M6186,S11652,S11712,S11791,S11828,S11829,S12574,S12670,S12741,S12743,S12776,S12778,S13120,S13123,S13182,S13299,V14937,W3112,

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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	EP2657	11/03/2025	05/03/2026	RUPESHKUMAR SHAH	None	None	Riteshkumar Patel 11/03/2025

FROM 1000.00000ml of M6186 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2663	11/20/2025	05/20/2026	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Riteshkumar Patel 11/20/2025

FROM 4000.00000gram of E3875 = Final Quantity: 4000.000 gram

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3493	Internal Standard 0.4 PPM	SP6830	06/17/2025	12/13/2025	Jagrut Upadhyay	None	None	Rahul Chavli 06/19/2025

FROM 0.10000ml of S12670 + 4.90000ml of E3942 = Final Quantity: 5.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4038	SFAM Tune 50ng/ul DFTPP	SP6868	09/08/2025	03/08/2026	Jagrut Upadhyay	None	None	Rahul Chavli 09/08/2025

FROM 0.10000ml of S12574 + 4.90000ml of E3964 = 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
3841	SFAM SIM ICAL STOCK 3.2ng	SP6877	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.04000ml of S11712 + 0.04000ml of S11828 + 0.04000ml of S12776 + 0.04000ml of S13120 + 0.08000ml of S12741 + 24.76000ml of E3973 = Final Quantity: 25.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3842	SFAM SIM SSTD 3.2 ng	SP6878	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.00000ml of E3973 + 0.01000ml of SP6830 + 1.00000ml of SP6877 = 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
3843	SFAM SIM SSTD 1.6 ng	SP6879	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.50000ml of E3973 + 0.01000ml of SP6830 + 0.50000ml of SP6877 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3844	SFAM SIM SSTD 0.8 ng	SP6880	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.75000ml of E3973 + 0.01000ml of SP6830 + 0.25000ml of SP6877 = Final Quantity: 1.010 ml

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Fax : 908 789 8922

SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3845	SFAM SIM SSTD 0.4 ng	SP6881	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.87500ml of E3973 + 0.01000ml of SP6830 + 0.12500ml of SP6877 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3846	SFAM SIM SSTD 0.2 ng	SP6882	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.50000ml of E3973 + 0.01000ml of SP6830 + 0.50000ml of SP6881 = Final Quantity: 1.010 ml

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Fax : 908 789 8922

SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3847	SFAM SIM SSTD 0.1 ng	SP6883	10/01/2025	12/09/2025	Jagrut Upadhyay	None	None	Sohil Jodhani 10/15/2025

FROM 0.75000ml of E3973 + 0.01000ml of SP6830 + 0.25000ml of SP6881 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3493	Internal Standard 0.4 PPM	SP6907	11/07/2025	04/16/2026	Jagrut Upadhyay	None	None	mohammad ahmed 11/13/2025

FROM 0.10000ml of S13182 + 4.90000ml of E3980 = 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
3856	SFAM SIM Spike Soilution 0.8ng / 1.6 ng PCP /4.0ng 1,4-Dioxane	SP6933	11/21/2025	01/30/2026	Jagrut Upadhyay	None	None	Sohil Jodhani 12/08/2025

FROM 0.00080ml of S11652 + 0.01000ml of S12778 + 0.02000ml of S12743 + 0.05000ml of S13123 + 24.91920ml of V14937 = Final Quantity: 25.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3853	SFAM SIM Surrogate Soilution 0.8ng /1.6 ng 1,4-Dioxane-D8	SP6934	11/21/2025	03/03/2026	Jagrut Upadhyay	None	None	Sohil Jodhani 12/08/2025

FROM 0.02000ml of S11829 + 0.04000ml of S11712 + 49.94000ml of V14937 = 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
3848	SFAM SIM ICV STOCK 3.2ng	SP6935	11/26/2025	03/03/2026	Jagrut Upadhyay	None	None	Sohil Jodhani 12/08/2025

FROM 0.01600ml of S11712 + 0.01600ml of S11791 + 0.01600ml of S11829 + 0.03200ml of S13299 + 9.92000ml of E3986 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3852	SFAM SIM ICV 0.4 ppm	SP6936	11/26/2025	03/03/2026	Jagrut Upadhyay	None	None	Sohil Jodhani 12/08/2025

FROM 0.87500ml of E3986 + 0.01000ml of SP6907 + 0.12500ml of SP6935 = Final Quantity: 1.010 ml

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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	417203	07/28/2026	07/28/2025 / RUPESH	01/29/2025 / Rajesh	E3875

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)	25A2862010	12/13/2025	06/13/2025 / Rajesh	02/28/2025 / Rajesh	E3942

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)	25C1262005	04/16/2026	08/14/2025 / RUPESH	03/06/2025 / RUPESH	E3964

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)	25C1262005	04/16/2026	09/15/2025 / Riteshkumar	09/15/2025 / Riteshkumar	E3973

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)	25C1262005	04/16/2026	10/10/2025 / RUPESH	10/10/2025 / RUPESH	E3980

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)	25C1262005	04/16/2026	11/14/2025 / RUPESH	11/05/2025 / RUPESH	E3986

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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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	07/12/2026	08/13/2025 / Sagar	08/06/2025 / Sagar	M6186

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]	A0201728	01/30/2026	07/30/2025 / Rahul	11/09/2023 / Yogesh	S11652

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30614 / 1,4-Dioxane-D8 Standard	A0199745	03/03/2026	09/03/2025 / Jagrut	11/20/2023 / Rahul	S11712

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	A0196453	05/18/2026	11/18/2025 / Jagrut	11/21/2023 / Rahul	S11791

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	A0201976	12/09/2025	06/09/2025 / Jagrut	11/21/2023 / rahul	S11828

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	A0201976	05/21/2026	11/21/2025 / Jagrut	11/21/2023 / rahul	S11829

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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	31001 / SV Tuning Compound Standard, 2500 ug/ml,	A0209632	03/31/2027	02/28/2025 / Rahul	08/01/2024 / Rahul	S12574

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	A0212266	12/16/2025	06/16/2025 / anahy	09/20/2024 / anahy	S12670

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31900 / SOM01.1 Mega Mix, 500-1000 ug/ml	A0215529	02/28/2026	10/01/2025 / Jagrut	10/08/2024 / anahy	S12741

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31900 / SOM01.1 Mega Mix, 500-1000 ug/ml	A0215529	02/28/2026	11/21/2025 / Jagrut	10/08/2024 / anahy	S12743

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90494 / 1-Methylnaphthalene, 2000 ug/mL, in methylene chloride	061323	02/12/2026	08/12/2025 / Jagrut	11/08/2024 / anahy	S12776

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90494 / 1-Methylnaphthalene, 2000 ug/mL, in methylene chloride	061323	05/21/2026	11/21/2025 / Jagrut	11/08/2024 / anahy	S12778

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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	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0218894	02/25/2026	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13120

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	A0218894	05/17/2026	11/17/2025 / Jagrut	05/20/2025 / Rahul	S13123

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	A0224359	05/07/2026	11/07/2025 / rahul	06/02/2025 / anahy	S13182

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]	A0229652	04/27/2026	10/27/2025 / Jagrut	10/15/2025 / rahul	S13299

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	24G0262002	04/30/2026	10/31/2025 / Amit	05/09/2025 / SAM	V14937

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

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

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:	MAY/23/2024
LOT NUMBER :	417203		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na_2SO_4)	Min. 99.0%	99.8 %
pH of a 5% solution at 25°C	5.2 - 9.2	6.2
Insoluble matter	Max. 0.01%	0.001 %
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%	0.001 %
Magnesium (Mg)	Max. 0.005%	0.001 %
Potassium (K)	Max. 0.008%	0.001 %
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%	96.2 %
Through US Standard No. 60 sieve	Max. 5%	3.5 %
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.

E 3875

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

avantor™ | J.T.Baker

Material No.: 9266-A4
Batch No.: 25A2862010
Manufactured Date: 2024-12-18
Expiration Date:2026-03-19
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 HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	2
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	>= 99.8 %	99.9 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.3 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: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

E3942

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

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

avantor™ | J.T.Baker

Material No.: 9266-A4
Batch No.: 25C1262005
Manufactured Date: 2025-01-15
Expiration Date:2026-04-16
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 HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1
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: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

Received on

E 3964

JCroak

Jamie Croak
Director Quality Operations, Bioscience Production

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

avantor | J.T.Baker

Material No.: 9266-A4
Batch No.: 25C1262005
Manufactured Date: 2025-01-15
Expiration Date:2026-04-16
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 HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1
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: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

Rec. on 6/10/25 PJ

E3980

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

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

avantor™ | J.T.Baker

Material No.: 9266-A4
Batch No.: 25C1262005
Manufactured Date: 2025-01-15
Expiration Date:2026-04-16
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 HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1
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

Received on 11/5/25

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

E3986

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

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

avantor™ | J.T.Baker®

M6186

Recien Date 8- 08/06/25

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

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 286 1700

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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.

Catalog No. : 555872 **Lot No.:** A0201728

Description : Custom Pentachlorophenol Standard

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

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

Expiration Date : September 30, 2026 **Storage:** 10°C or colder

Ship: Ambient

511649 ↓ 511658 Y.P. 11/13/23

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pentachlorophenol	87-86-5	RP230530RSR	99%	25,000.0 µg/mL	+/- 777.0837

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

Josh McCloskey - Operations Technician I

Date Mixed: 05-Sep-2023 **Balance:** B251644995

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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

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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.

Catalog No. : 30614 **Lot No.:** A0199745

Description : 1,4-dioxane-d8 Standard

1,4-dioxane-d8 Standard 2000 µg/mL, P&T Methanol, 1mL/ampul

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

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

Ship: Ambient

S11707
↓
S11718
RC
11/21/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dioxane-d8	17647-74-4	RP230605	99%	2,008.4 µg/mL	+/- 24.9949

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

* Expanded Uncertainty displayed in same units as Grav. Conc.

Quality Confirmation Test

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.)

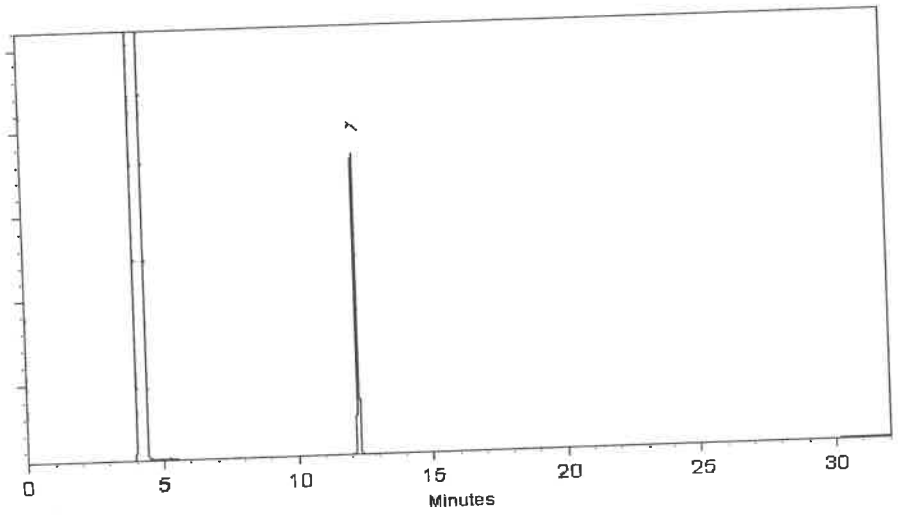
Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID

Split Vent:
40 ml/min

Inj. Vol
1µl



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.

Daniel Wasson - Operations Tech I

Date Mixed: 10-Jul-2023 **Balance Serial #** 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 24-Jul-2023

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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

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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.

Catalog No. : 31853 **Lot No.:** A0196453

Description : 1,4-dioxane

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

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

Expiration Date : March 31, 2028 **Storage:** 0°C or colder

Ship: Ambient

S11749 ↓ S11794 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dioxane	123-91-1	SHBN3770	99%	2,013.0 µg/mL	+/- 25.0521

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Quality Confirmation Test

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.)

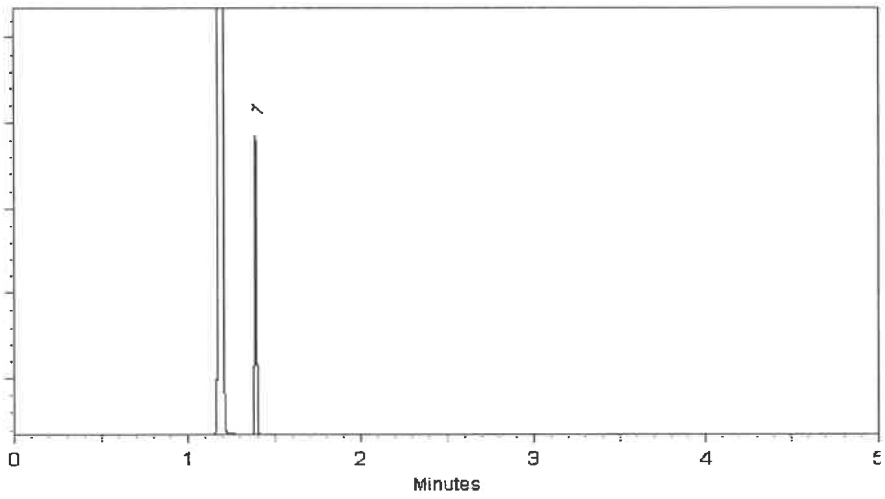
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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: 30-Mar-2023 **Balance Serial #** B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 31-Mar-2023

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.
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- 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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

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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.

Catalog No. : 33913 **Lot No.:** A0201976

Description : SOM01.0 SIM Analysis Standard

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

S11828 ↓ S11832 } RC/ 11/30/23

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

Expiration Date : August 31, 2029 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Methylnaphthalene-d10	7297-45-2	EF-135	98%	2,015.9 µg/mL	+/- 90.8098
2	Fluoranthene-d10	93951-69-0	PR-32557	99%	2,020.0 µg/mL	+/- 90.9963

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Quality Confirmation Test

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.)

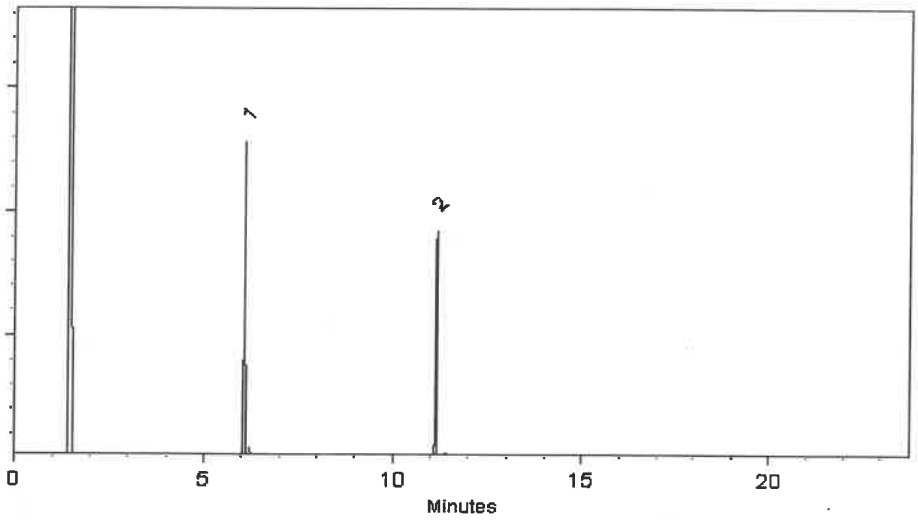
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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.

Dakota Parson - Operations Technician I

Date Mixed: 13-Sep-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 28-Sep-2023

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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.

Catalog No. : 33913 **Lot No.:** A0201976

Description : SOM01.0 SIM Analysis Standard

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

S11828 ↓ S11832 } RC/ 11/30/23

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

Expiration Date : August 31, 2029 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Methylnaphthalene-d10	7297-45-2	EF-135	98%	2,015.9 µg/mL	+/- 90.8098
2	Fluoranthene-d10	93951-69-0	PR-32557	99%	2,020.0 µg/mL	+/- 90.9963

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Quality Confirmation Test

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.)

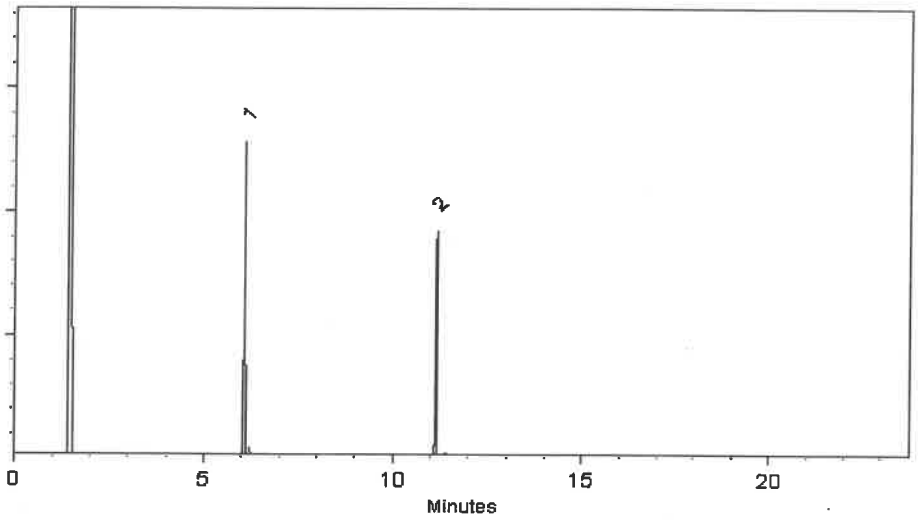
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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.

Dakota Parson - Operations Technician I

Date Mixed: 13-Sep-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 28-Sep-2023

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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.

Catalog No. : 31001 **Lot No.:** A0209632

Description : SV Tuning Compound Standard

Tuning Std Decafluorotriphenylphosphine 2500µg/mL, Methylene Chloride, 1mL/ampul

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

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

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	DFTPP (Decafluorotriphenylphosphine)	5074-71-5	Q117-147	99%	2,516.0 µg/mL	+/- 113.3634

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

S12574 ↓ S12576 RC 8/2/24

Quality Confirmation Test

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.)

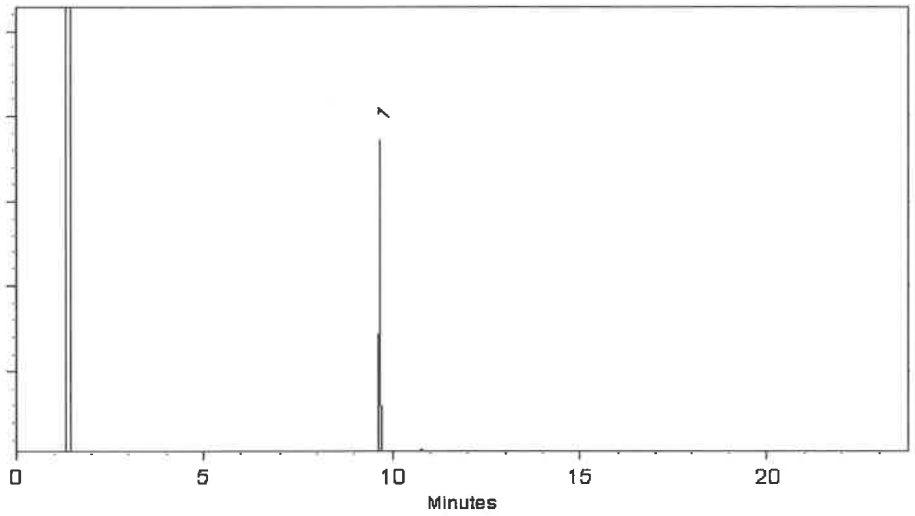
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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.

Wilner Torres - Operation Tech I **Date Mixed:** 29-Mar-2024 **Balance Serial #** B345965662

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 02-Apr-2024

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

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ilac-MRA A2LA 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.

Catalog No. : 31206 **Lot No.:** A0212266

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 : April 30, 2030 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99%	2,000.6 µg/mL	+/- 90.1075
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,000.3 µg/mL	+/- 90.0925
3	Acenaphthene-d10	15067-26-2	PR-33507	99%	2,000.4 µg/mL	+/- 90.1000
4	Phenanthrene-d10	1517-22-2	PR-34099	99%	2,000.5 µg/mL	+/- 90.1037
5	Chrysene-d12	1719-03-5	PR-33506	99%	2,000.7 µg/mL	+/- 90.1112
6	Perylene-d12	1520-96-3	PR-33205	99%	2,000.6 µg/mL	+/- 90.1075

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

S12645 ↓ S12674 AC 10/1/24

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ISO 17034 Accredited Reference Material Producer Certificate #3222.01

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.

Catalog No. : 31900 **Lot No.:** A0215529

Description : OLM 01.1 Revised SV MegaMix

OLM 01.1 Revised SV MegaMix 500-1000 µg/mL, Methylene chloride, 1mL/ampul

S12736 ↓ S12754 } AC 10/9/24

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

Expiration Date : February 28, 2026 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Phenol	108-95-2	MKCK1120	99%	1,008.6 µg/mL	+/- 19.3211
2	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,002.3 µg/mL	+/- 19.2013
3	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.2 µg/mL	+/- 19.2564
4	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,006.3 µg/mL	+/- 19.2768
5	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,009.3 µg/mL	+/- 19.3354
6	Acetophenone	98-86-2	STBH8205	99%	1,003.8 µg/mL	+/- 18.5851
7	Hexachloroethane	67-72-1	QTORH	99%	1,000.6 µg/mL	+/- 19.1690
8	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.5 µg/mL	+/- 19.2599
9	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	500.3 µg/mL	+/- 9.5854
10	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 9.6213
11	Nitrobenzene	98-95-3	10224044	99%	1,003.2 µg/mL	+/- 19.2181
12	Isophorone	78-59-1	MKCC9506	99%	1,007.0 µg/mL	+/- 19.2911
13	2-Nitrophenol	88-75-5	RP230509C	99%	1,003.4 µg/mL	+/- 19.2217
14	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,008.1 µg/mL	+/- 19.3115
15	Bis(2-chloroethoxy)methane	111-91-1	15174900	99%	1,002.3 µg/mL	+/- 19.2001
16	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,002.3 µg/mL	+/- 19.2001

17	Naphthalene	91-20-3	STBL1057	99%	1,003.6	µg/mL	+/- 19.2253
18	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.5	µg/mL	+/- 19.2791
19	Hexachlorobutadiene	87-68-3	RP240110CTH	97%	1,003.9	µg/mL	+/- 19.2316
20	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,005.1	µg/mL	+/- 19.2718
21	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,003.8	µg/mL	+/- 19.2301
22	1,2,4,5-Tetrachlorobenzene	95-94-3	MKCT9480	99%	1,000.5	µg/mL	+/- 19.1832
23	Hexachlorocyclopentadiene	77-47-4	099063I14L	98%	1,001.3	µg/mL	+/- 19.1811
24	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.1	µg/mL	+/- 19.2349
25	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,008.6	µg/mL	+/- 19.3221
26	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,002.3	µg/mL	+/- 19.2001
27	Biphenyl	92-52-4	MKCS5928	99%	1,001.3	µg/mL	+/- 18.5388
28	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,000.5	µg/mL	+/- 19.1832
29	Acenaphthylene	208-96-8	214935V16F	97%	999.9	µg/mL	+/- 19.1561
30	Dimethylphthalate	131-11-3	358221L17K	99%	1,005.8	µg/mL	+/- 19.2672
31	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,001.2	µg/mL	+/- 19.1798
32	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 19.1570
33	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,005.5	µg/mL	+/- 19.2791
34	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,008.8	µg/mL	+/- 19.3259
35	Dibenzofuran	132-64-9	MKCD9952	99%	1,002.5	µg/mL	+/- 18.5619
36	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,002.5	µg/mL	+/- 19.2049
37	4-Nitrophenol	100-02-7	RP230627	99%	1,004.4	µg/mL	+/- 19.2421
38	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,001.5	µg/mL	+/- 19.2024
39	Fluorene	86-73-7	10241100	99%	1,004.2	µg/mL	+/- 19.2373
40	4-Chlorophenyl phenyl ether	7005-72-3	MKCT7248	99%	1,003.0	µg/mL	+/- 19.2145
41	Diethylphthalate	84-66-2	BCCJ6241	99%	1,002.1	µg/mL	+/- 19.1978
42	4-Nitroaniline	100-01-6	RP240510RSR	99%	1,005.0	µg/mL	+/- 19.2695
43	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S240410RSR	99%	1,001.1	µg/mL	+/- 19.1786
44	Diphenylamine	122-39-4	MKCT1512	99%	1,004.5	µg/mL	+/- 19.2599
45	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.9	µg/mL	+/- 19.2708
46	Hexachlorobenzene	118-74-1	15458400	99%	1,009.2	µg/mL	+/- 19.3331
47	Pentachlorophenol	87-86-5	RP240411RSR	99%	1,008.9	µg/mL	+/- 19.3283
48	Phenanthrene	85-01-8	MKCS5188	99%	1,006.2	µg/mL	+/- 19.2756
49	Anthracene	120-12-7	101492T18R	99%	1,001.6	µg/mL	+/- 19.1882
50	Carbazole	86-74-8	15276700	99%	1,004.0	µg/mL	+/- 19.2503
51	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,002.5	µg/mL	+/- 19.2049
52	Fluoranthene	206-44-0	MKCQ4728	99%	1,008.7	µg/mL	+/- 19.3235

53	Pyrene	129-00-0	BCCK2592	99%	1,002.9	µg/mL	+/- 19.2121
54	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.6	µg/mL	+/- 19.2444
55	Benz(a)anthracene	56-55-3	I50012022BAA	99%	1,009.1	µg/mL	+/- 19.3307
56	Chrysene	218-01-9	RP240719RSR	99%	1,005.9	µg/mL	+/- 19.2708
57	3,3'-Dichlorobenzidine	91-94-1	S231019RSR	99%	1,001.5	µg/mL	+/- 19.2024
58	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,006.3	µg/mL	+/- 19.2768
59	Di-n-octyl phthalate	117-84-0	15276800	99%	1,008.9	µg/mL	+/- 19.3283
60	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,006.4	µg/mL	+/- 19.2792
61	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,001.9	µg/mL	+/- 19.1942
62	Benzo(a)pyrene	50-32-8	O45GL	98%	1,003.9	µg/mL	+/- 19.2327
63	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,003.7	µg/mL	+/- 19.2281
64	Dibenz(a,h)anthracene	53-70-3	2-ASA-59-1	99%	1,004.2	µg/mL	+/- 19.2373
65	Benzo(g,h,i)perylene	191-24-2	RP240625RSR	97%	1,001.5	µg/mL	+/- 19.1863

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Tech Tips:

N-Nitrosodiphenylamine (86-30-6) is prone to breakdown in the injection port and will be converted to Diphenylamine (122-39-4). When comparing the response of Diphenylamine to mixtures manufactured using N-Nitrosodiphenylamine, a difference in response will be observed. The ratio of the MW can be used to calculate the theoretical concentration of the N-Nitrosodiphenylamine.

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Certificate of Analysis

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ISO 17034 Accredited Reference Material Producer Certificate #3222.01

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.

Catalog No. : 31900 **Lot No.:** A0215529

Description : OLM 01.1 Revised SV MegaMix

OLM 01.1 Revised SV MegaMix 500-1000 µg/mL, Methylene chloride, 1mL/ampul

S12736 ↓ S12754 } AC 10/9/24

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

Expiration Date : February 28, 2026 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Phenol	108-95-2	MKCK1120	99%	1,008.6 µg/mL	+/- 19.3211
2	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,002.3 µg/mL	+/- 19.2013
3	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.2 µg/mL	+/- 19.2564
4	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,006.3 µg/mL	+/- 19.2768
5	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,009.3 µg/mL	+/- 19.3354
6	Acetophenone	98-86-2	STBH8205	99%	1,003.8 µg/mL	+/- 18.5851
7	Hexachloroethane	67-72-1	QTORH	99%	1,000.6 µg/mL	+/- 19.1690
8	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.5 µg/mL	+/- 19.2599
9	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	500.3 µg/mL	+/- 9.5854
10	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 9.6213
11	Nitrobenzene	98-95-3	10224044	99%	1,003.2 µg/mL	+/- 19.2181
12	Isophorone	78-59-1	MKCC9506	99%	1,007.0 µg/mL	+/- 19.2911
13	2-Nitrophenol	88-75-5	RP230509C	99%	1,003.4 µg/mL	+/- 19.2217
14	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,008.1 µg/mL	+/- 19.3115
15	Bis(2-chloroethoxy)methane	111-91-1	15174900	99%	1,002.3 µg/mL	+/- 19.2001
16	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,002.3 µg/mL	+/- 19.2001

17	Naphthalene	91-20-3	STBL1057	99%	1,003.6	µg/mL	+/- 19.2253
18	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.5	µg/mL	+/- 19.2791
19	Hexachlorobutadiene	87-68-3	RP240110CTH	97%	1,003.9	µg/mL	+/- 19.2316
20	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,005.1	µg/mL	+/- 19.2718
21	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,003.8	µg/mL	+/- 19.2301
22	1,2,4,5-Tetrachlorobenzene	95-94-3	MKCT9480	99%	1,000.5	µg/mL	+/- 19.1832
23	Hexachlorocyclopentadiene	77-47-4	099063I14L	98%	1,001.3	µg/mL	+/- 19.1811
24	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.1	µg/mL	+/- 19.2349
25	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,008.6	µg/mL	+/- 19.3221
26	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,002.3	µg/mL	+/- 19.2001
27	Biphenyl	92-52-4	MKCS5928	99%	1,001.3	µg/mL	+/- 18.5388
28	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,000.5	µg/mL	+/- 19.1832
29	Acenaphthylene	208-96-8	214935V16F	97%	999.9	µg/mL	+/- 19.1561
30	Dimethylphthalate	131-11-3	358221L17K	99%	1,005.8	µg/mL	+/- 19.2672
31	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,001.2	µg/mL	+/- 19.1798
32	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 19.1570
33	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,005.5	µg/mL	+/- 19.2791
34	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,008.8	µg/mL	+/- 19.3259
35	Dibenzofuran	132-64-9	MKCD9952	99%	1,002.5	µg/mL	+/- 18.5619
36	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,002.5	µg/mL	+/- 19.2049
37	4-Nitrophenol	100-02-7	RP230627	99%	1,004.4	µg/mL	+/- 19.2421
38	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,001.5	µg/mL	+/- 19.2024
39	Fluorene	86-73-7	10241100	99%	1,004.2	µg/mL	+/- 19.2373
40	4-Chlorophenyl phenyl ether	7005-72-3	MKCT7248	99%	1,003.0	µg/mL	+/- 19.2145
41	Diethylphthalate	84-66-2	BCCJ6241	99%	1,002.1	µg/mL	+/- 19.1978
42	4-Nitroaniline	100-01-6	RP240510RSR	99%	1,005.0	µg/mL	+/- 19.2695
43	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S240410RSR	99%	1,001.1	µg/mL	+/- 19.1786
44	Diphenylamine	122-39-4	MKCT1512	99%	1,004.5	µg/mL	+/- 19.2599
45	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.9	µg/mL	+/- 19.2708
46	Hexachlorobenzene	118-74-1	15458400	99%	1,009.2	µg/mL	+/- 19.3331
47	Pentachlorophenol	87-86-5	RP240411RSR	99%	1,008.9	µg/mL	+/- 19.3283
48	Phenanthrene	85-01-8	MKCS5188	99%	1,006.2	µg/mL	+/- 19.2756
49	Anthracene	120-12-7	101492T18R	99%	1,001.6	µg/mL	+/- 19.1882
50	Carbazole	86-74-8	15276700	99%	1,004.0	µg/mL	+/- 19.2503
51	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,002.5	µg/mL	+/- 19.2049
52	Fluoranthene	206-44-0	MKCQ4728	99%	1,008.7	µg/mL	+/- 19.3235

53	Pyrene	129-00-0	BCCK2592	99%	1,002.9	µg/mL	+/- 19.2121
54	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.6	µg/mL	+/- 19.2444
55	Benz(a)anthracene	56-55-3	I50012022BAA	99%	1,009.1	µg/mL	+/- 19.3307
56	Chrysene	218-01-9	RP240719RSR	99%	1,005.9	µg/mL	+/- 19.2708
57	3,3'-Dichlorobenzidine	91-94-1	S231019RSR	99%	1,001.5	µg/mL	+/- 19.2024
58	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,006.3	µg/mL	+/- 19.2768
59	Di-n-octyl phthalate	117-84-0	15276800	99%	1,008.9	µg/mL	+/- 19.3283
60	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,006.4	µg/mL	+/- 19.2792
61	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,001.9	µg/mL	+/- 19.1942
62	Benzo(a)pyrene	50-32-8	O45GL	98%	1,003.9	µg/mL	+/- 19.2327
63	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,003.7	µg/mL	+/- 19.2281
64	Dibenz(a,h)anthracene	53-70-3	2-ASA-59-1	99%	1,004.2	µg/mL	+/- 19.2373
65	Benzo(g,h,i)perylene	191-24-2	RP240625RSR	97%	1,001.5	µg/mL	+/- 19.1863

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Tech Tips:

N-Nitrosodiphenylamine (86-30-6) is prone to breakdown in the injection port and will be converted to Diphenylamine (122-39-4). When comparing the response of Diphenylamine to mixtures manufactured using N-Nitrosodiphenylamine, a difference in response will be observed. The ratio of the MW can be used to calculate the theoretical concentration of the N-Nitrosodiphenylamine.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 90494
Lot Number: 061323
Description: 1-Methylnaphthalene

Expiration Date: 061328
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 2000
NIST Test ID#: 6UTB

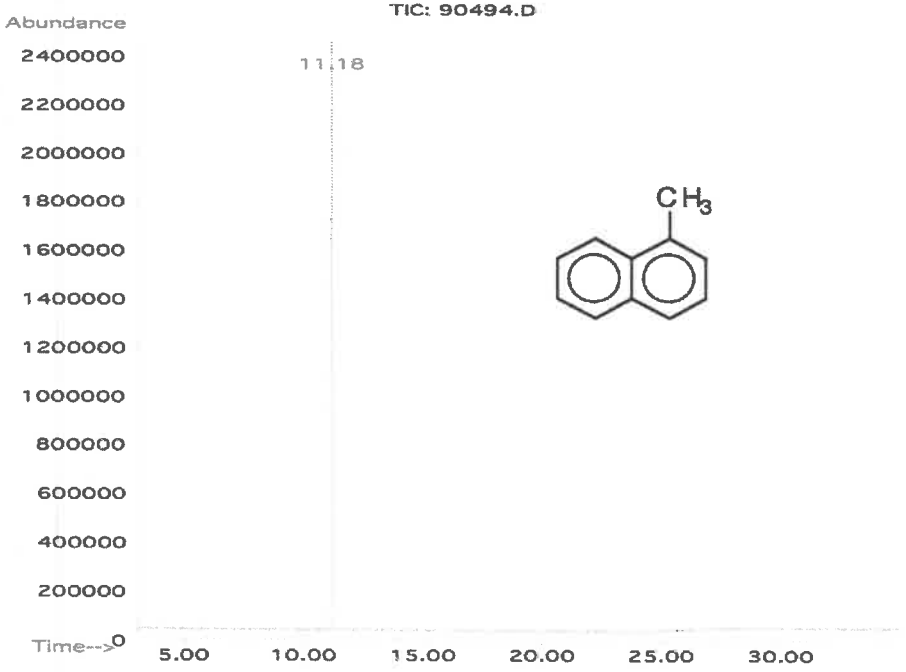
Solvent(s): **Lot#**
Methylene chloride C21F09CAS0000DCM

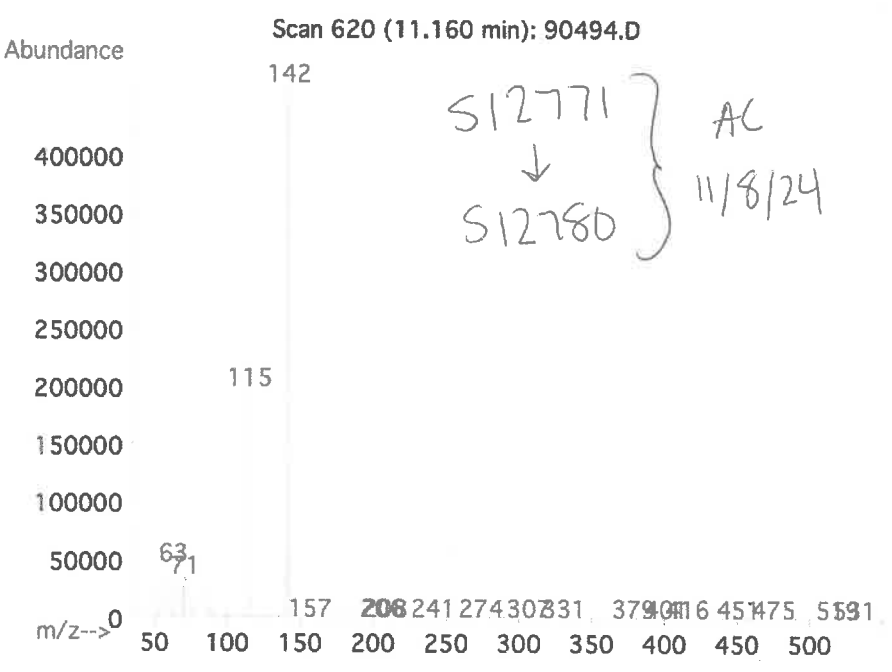
5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 100.0 0.031 Flask Uncertainty

Prashant Chauhan		061323
Formulated By:	Prashant Chauhan	DATE
Pedro L. Rentas		061323
Reviewed By:	Pedro L. Rentas	DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. 1-Methylnaphthalene	313	04413BX	2000	98	0.2	0.20417	0.20430	2001.2	8.3	90-12-0	N/A	orl-rat 1840mg/kg

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Gina McLane.





S12771 → S12780 AC 11/8/24

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 90494
Lot Number: 061323
Description: 1-Methylnaphthalene

Expiration Date: 061328
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 2000
NIST Test ID#: 6UTB

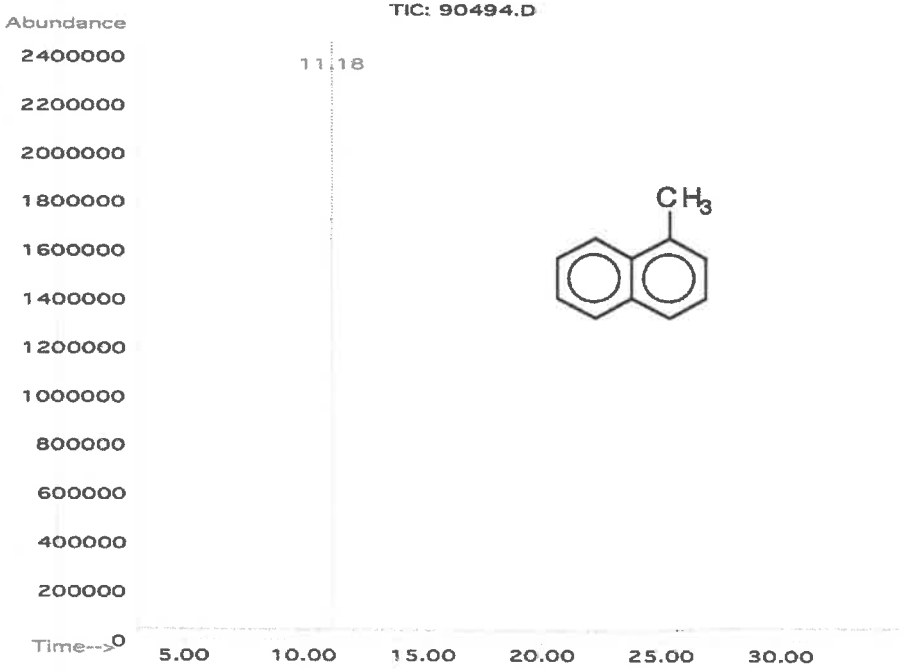
Solvent(s): **Lot#**
Methylene chloride C21F09CAS0000DCM

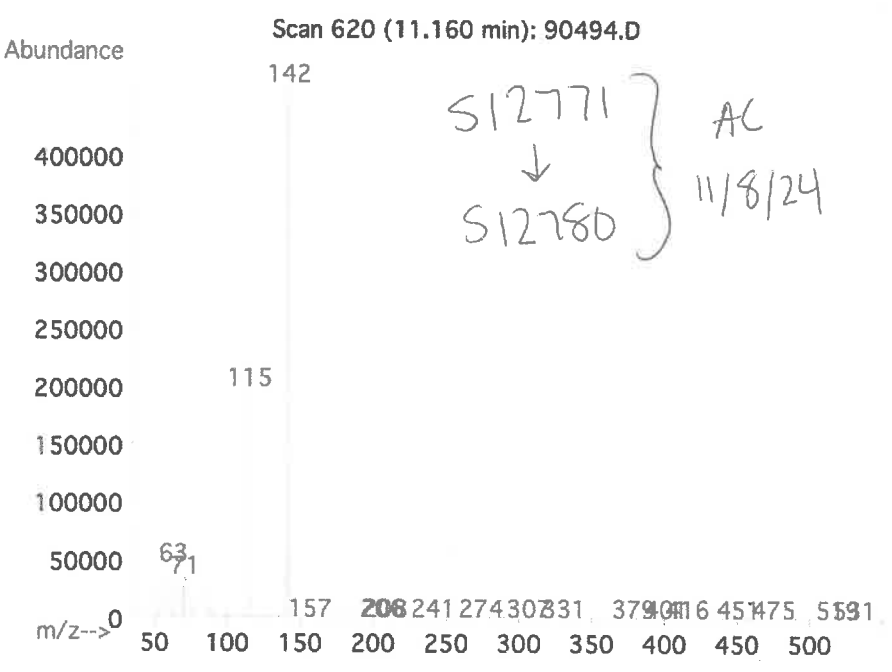
5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 100.0 0.031 Flask Uncertainty

Prashant Chauhan		061323
Formulated By:	Prashant Chauhan	DATE
Pedro L. Rentas		061323
Reviewed By:	Pedro L. Rentas	DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. 1-Methylnaphthalene	313	04413BX	2000	98	0.2	0.20417	0.20430	2001.2	8.3	90-12-0	N/A	orl-rat 1840mg/kg

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Gina McLane.





S12771 → S12780 AC 11/8/24

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
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- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ilac-MRA A2LA 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.

Catalog No. : 31853 **Lot No.:** A0218894

Description : 1,4-dioxane

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

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

Expiration Date : November 30, 2029 **Storage:** 0°C or colder

Ship: Ambient

513118 ↓ 513147 } RC/ 5/20/25.

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dioxane	123-91-1	SHBQ1693	99%	2,002.4 µg/mL	+/- 24.9202

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Quality Confirmation Test

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.)

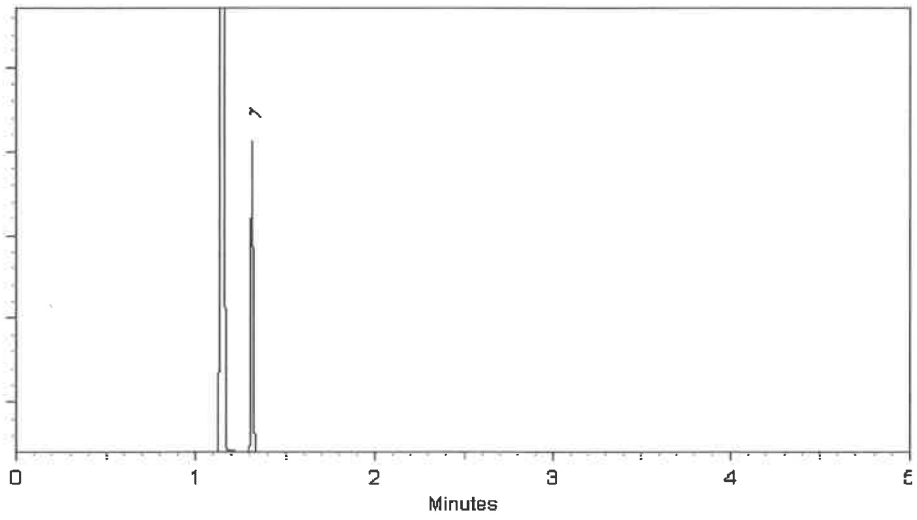
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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.

Penelope Riglin - Operations Tech I

Date Mixed: 07-Nov-2024 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 11-Nov-2024

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

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

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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.

Catalog No. : 31853 **Lot No.:** A0218894

Description : 1,4-dioxane

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

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

Expiration Date : November 30, 2029 **Storage:** 0°C or colder

Ship: Ambient

513118 ↓ 513147 } RC/ 5/20/25.

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dioxane	123-91-1	SHBQ1693	99%	2,002.4 µg/mL	+/- 24.9202

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Quality Confirmation Test

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.)

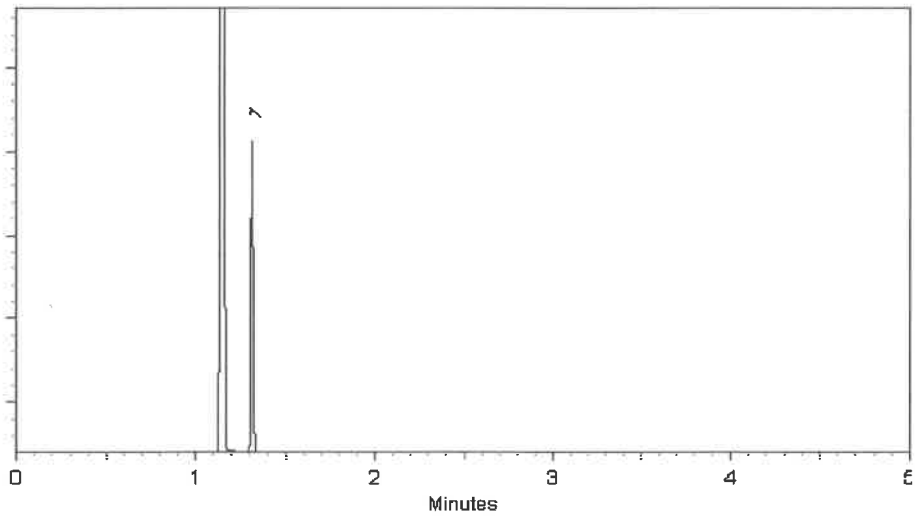
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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.

Penelope Riglin - Operations Tech I

Date Mixed: 07-Nov-2024 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 11-Nov-2024

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

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ilac-MRA A2LA 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.

Catalog No. : 31206 **Lot No.:** A0224359

Description : SV Internal Standard Mix 2mg/ml

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

S13168 ↓ S13197 } AC 6/9/25

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

Expiration Date : March 31, 2031 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99%	2,000.0 µg/mL	+/- 90.0812
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,000.8 µg/mL	+/- 90.1187
3	Acenaphthene-d10	15067-26-2	PR-33507	99%	2,000.8 µg/mL	+/- 90.1187
4	Phenanthrene-d10	1517-22-2	PR-34099	99%	2,000.0 µg/mL	+/- 90.0812
5	Chrysene-d12	1719-03-5	PR-33506	99%	2,000.8 µg/mL	+/- 90.1187
6	Perylene-d12	1520-96-3	PR-33205	99%	2,000.0 µg/mL	+/- 90.0812

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

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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.

Catalog No. : 31850 **Lot No.:** A0229652

Description : 8270 MegaMix®

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

S13299 ↓ S13328 RC 10/17/25

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,004.9 µg/mL	+/- 36.5621
2	N-Nitrosodimethylamine	62-75-9	S250717RSR	99%	1,004.5 µg/mL	+/- 36.5484
3	Phenol	108-95-2	MKCT5446	99%	1,003.5 µg/mL	+/- 36.5120
4	Aniline	62-53-3	X22F726	99%	1,004.8 µg/mL	+/- 36.5575
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,003.6 µg/mL	+/- 36.5166
6	2-Chlorophenol	95-57-8	STBK4742	99%	1,004.5 µg/mL	+/- 36.5484
7	1,3-Dichlorobenzene	541-73-1	STBL1702	99%	1,003.8 µg/mL	+/- 36.5211
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,003.8 µg/mL	+/- 36.5211
9	Benzyl alcohol	100-51-6	094986W07G	99%	1,003.8 µg/mL	+/- 36.5211
10	1,2-Dichlorobenzene	95-50-1	SHBR4446	99%	1,004.9 µg/mL	+/- 36.5621
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.3 µg/mL	+/- 36.5393
12	2,2'-oxybis(1-chloropropane)	108-60-1	RP250904RSR	99%	1,005.0 µg/mL	+/- 36.5666
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.4 µg/mL	+/- 18.2788
14	4-Methylphenol (p-cresol)	106-44-5	SHBQ7653	99%	502.3 µg/mL	+/- 18.2742
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.9 µg/mL	+/- 36.5621
16	Hexachloroethane	67-72-1	DAXRI	99%	1,003.9 µg/mL	+/- 36.5257
17	Nitrobenzene	98-95-3	10224044	99%	1,003.9 µg/mL	+/- 36.5257

18	Isophorone	78-59-1	MKCR3249	99%	1,004.8	µg/mL	+/- 36.5575
19	2-Nitrophenol	88-75-5	RP230710	99%	1,003.6	µg/mL	+/- 36.5166
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.1	µg/mL	+/- 36.5348
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.5	µg/mL	+/- 36.5484
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.8	µg/mL	+/- 36.5575
23	1,2,4-Trichlorobenzene	120-82-1	SHBR1701	99%	1,004.0	µg/mL	+/- 36.5302
24	Naphthalene	91-20-3	STBL1057	99%	1,004.0	µg/mL	+/- 36.5302
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,004.5	µg/mL	+/- 36.5484
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,002.7	µg/mL	+/- 36.4816
27	4-Chloro-3-methylphenol	59-50-7	BCCK5906	99%	1,004.3	µg/mL	+/- 36.5393
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,000.5	µg/mL	+/- 36.4029
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	1,000.0	µg/mL	+/- 36.3847
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,004.0	µg/mL	+/- 36.5302
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,003.5	µg/mL	+/- 36.5120
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,003.6	µg/mL	+/- 36.5152
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,003.6	µg/mL	+/- 36.5166
34	2-Nitroaniline	88-74-4	RP250625RSR	99%	1,003.8	µg/mL	+/- 36.5211
35	1,4-Dinitrobenzene	100-25-4	RP250401RSR	99%	1,004.6	µg/mL	+/- 36.5530
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.4	µg/mL	+/- 36.3974
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.8	µg/mL	+/- 36.5575
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,003.5	µg/mL	+/- 36.5120
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,004.6	µg/mL	+/- 36.5530
40	1,2-Dinitrobenzene	528-29-0	RP250203RSR	99%	1,002.6	µg/mL	+/- 36.4802
41	Acenaphthene	83-32-9	MKCV8166	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,003.8	µg/mL	+/- 36.5211
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,004.1	µg/mL	+/- 36.5348
44	Dibenzofuran	132-64-9	MKCW3845	99%	1,003.6	µg/mL	+/- 36.5166
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,003.8	µg/mL	+/- 36.5211
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,003.0	µg/mL	+/- 36.4938
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,003.8	µg/mL	+/- 36.5211
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP250724RSR	99%	1,003.1	µg/mL	+/- 36.4984
49	Fluorene	86-73-7	10246250	98%	1,002.9	µg/mL	+/- 36.4905
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.3	µg/mL	+/- 36.5393
51	Diethylphthalate	84-66-2	223219R19C	99%	1,004.8	µg/mL	+/- 36.5575
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,004.0	µg/mL	+/- 36.5302
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S250805RSR	99%	1,004.8	µg/mL	+/- 36.5575

54	Diphenylamine	122-39-4	MKCT1512	99%	1,004.9	µg/mL	+/- 36.5621
55	Azobenzene	103-33-3	BCCL3292	99%	1,003.9	µg/mL	+/- 36.5257
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,003.9	µg/mL	+/- 36.5257
57	Hexachlorobenzene	118-74-1	16302300	99%	1,004.5	µg/mL	+/- 36.5484
58	Pentachlorophenol	87-86-5	RP240411RSR	99%	1,004.9	µg/mL	+/- 36.5621
59	Phenanthrene	85-01-8	MKCV8193	99%	1,003.8	µg/mL	+/- 36.5211
60	Anthracene	120-12-7	MKCW9141	99%	1,003.3	µg/mL	+/- 36.5029
61	Carbazole	86-74-8	15821400	99%	1,003.1	µg/mL	+/- 36.4984
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,004.6	µg/mL	+/- 36.5530
63	Fluoranthene	206-44-0	A0458721	99%	1,004.8	µg/mL	+/- 36.5575
64	Pyrene	129-00-0	BCCL8032	99%	1,003.8	µg/mL	+/- 36.5211
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.9	µg/mL	+/- 36.5621
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5075
67	Benz(a)anthracene	56-55-3	I80012022BAA	99%	1,004.3	µg/mL	+/- 36.5393
68	Chrysene	218-01-9	RP250815RSR	99%	1,003.9	µg/mL	+/- 36.5257
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.5	µg/mL	+/- 36.5484
70	Di-n-octyl phthalate	117-84-0	16197600	99%	1,004.4	µg/mL	+/- 36.5439
71	Benzo(b)fluoranthene	205-99-2	0225BF	99%	1,005.4	µg/mL	+/- 36.5803
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.5	µg/mL	+/- 36.5484
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,002.4	µg/mL	+/- 36.4726
74	Indeno(1,2,3-cd)pyrene	193-39-5	17-YMK-40-2	99%	1,004.0	µg/mL	+/- 36.5302
75	Dibenz(a,h)anthracene	53-70-3	712215450-1-1	99%	1,003.5	µg/mL	+/- 36.5120
76	Benzo(g,h,i)perylene	191-24-2	RP250501RSR	98%	1,003.0	µg/mL	+/- 36.4949

* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Tech Tips:
N-Nitrosodiphenylamine (86-30-6) is prone to breakdown in the injection port and will be converted to Diphenylamine (122-39-4). When comparing the response of Diphenylamine to mixtures manufactured using N-Nitrosodiphenylamine, a difference in response will be observed. The ratio of the MW can be used to calculate the theoretical concentration of the N-Nitrosodiphenylamine.

Quality Confirmation Test

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.)

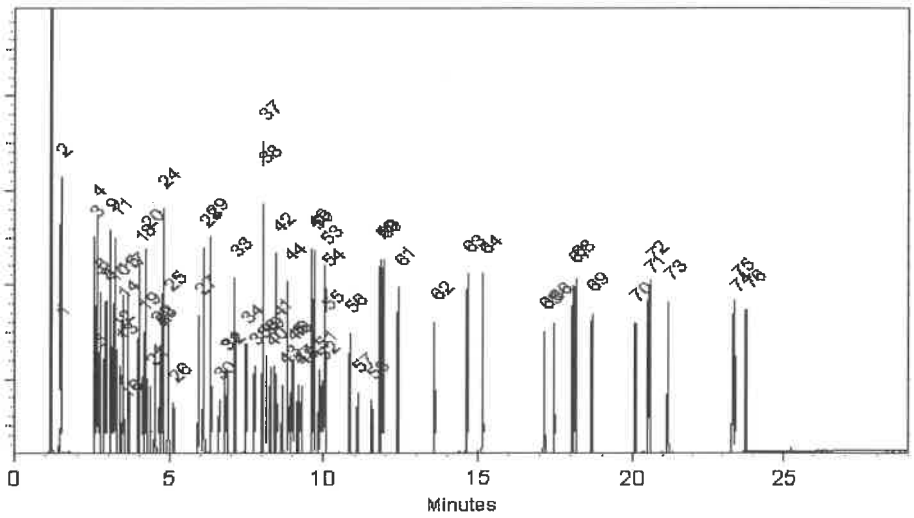
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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.

Dakota Parson - Operations Technician I

Date Mixed: 04-Sep-2025 **Balance Serial #** B345965662

Brittany Federinko - Operations Tech II

Date Passed: 15-Sep-2025

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

Methanol
ULTRA RESI-ANALYZED
For Purge and Trap Analysis

Rec 05/09/25

avantor™ | J.T.Baker®

V 14921 to
V 14938

Material No.: 9077-02
Batch No.: 24G0262002
Manufactured Date: 2024-05-14
Expiration Date: 2027-05-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH_3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.3
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis - Below EPA 8260B CRQL	Conforms	Conforms

For Laboratory,Research,or Manufacturing Use
Performance Tested for Use in EPA Methods
500 Series for Drinking Water
600 Series for Wastewater
846 for Solid Waste

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

JCroak

Jamie Croak
Director Quality Operations, Bioscience Production