

## Prep Standard - Chemical Standard Summary

**Order ID :** Q3688

**Test :** SVOCMS Group1

**Prepbatch ID :** PB170717,PB170719,PB170721,PB170723,PB170741,

**Sequence ID/Qc Batch ID:** BG112525,BG112425

**Standard ID :**

EP2657,EP2663,SP6868,SP6886,SP6887,SP6888,SP6889,SP6890,SP6891,SP6892,SP6929,SP6930,SP6931,SP6932,

**Chemical ID :**

10ul/1000ul

sample,E3875,E3964,E3973,E3986,M6186,S11606,S11712,S11791,S11829,S11870,S11871,S12228,S12246,S12247,S12256,S12262,S12308,S12564,S12574,S12675,S12740,S12741,S12743,S12777,S12778,S12802,S12805,S12823,S12824,S12826,S12870,S12871,S13121,S13123,S13177,S13183,S13184,S13249,S13299,V14937,W3112,

## Extractions STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
314	1.1 H2SO4 SOLN	<a href="#">EP2657</a>	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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3923	Baked Sodium Sulfate	<a href="#">EP2663</a>	11/20/2025	05/20/2026	RUPESHKUMAR SHAH	Extraction_SC ALE_2 (EX-SC-2)	None	Riteshkumar Patel 11/20/2025

**FROM** 4000.00000gram of E3875 = Final Quantity: 4000.000 gram

## SVOC STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4038	SFAM Tune 50ng/ul DFTPP	<a href="#">SP6868</a>	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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3858	SFAM ICALSTOCK 200ppm : 5?.?0 ml	<a href="#">SP6886</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.20000ml of E3973 + 0.20000ml of S11712 + 0.20000ml of S12256 + 0.20000ml of S12262 + 0.20000ml of S13121 +  
0.50000ml of S12246 + 0.50000ml of S12777 + 0.50000ml of S12805 + 0.50000ml of S12823 + 1.00000ml of S12308 +  
1.00000ml of S12741 = Final Quantity: 5.000 ml

## SVOC STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3859	SFAM SST005	<a href="#">SP6887</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.01000ml of S13177 + 0.97500ml of E3973 + 0.02500ml of SP6886 = Final Quantity: 1.010 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3860	SFAM SST010	<a href="#">SP6888</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.01000ml of S13177 + 0.95000ml of E3973 + 0.05000ml of SP6886 = Final Quantity: 1.010 ml

## SVOC STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3861	SFAM SST020	<a href="#">SP6889</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.01000ml of S13177 + 0.90000ml of E3973 + 0.10000ml of SP6886 = Final Quantity: 1.010 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3862	SFAM SST040	<a href="#">SP6890</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.01000ml of S13177 + 0.80000ml of E3973 + 0.20000ml of SP6886 = Final Quantity: 1.010 ml

## SVOC STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3863	SFAM SSTD080	<a href="#">SP6891</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.01000ml of S13177 + 0.60000ml of E3973 + 0.40000ml of SP6886 = Final Quantity: 1.010 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3864	SFAM SSTD160	<a href="#">SP6892</a>	10/08/2025	01/31/2026	Jagrut Upadhyay	None	None	Rahul Chavli
								10/09/2025

**FROM** 0.01000ml of S13177 + 0.20000ml of E3973 + 0.80000ml of SP6886 = Final Quantity: 1.010 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3865	SFAM ICV STOCK 200 PPM 2.0ml	<a href="#">SP6929</a>	11/21/2025	03/03/2026	Jagrut Upadhyay	None	None	Rahul Chavli  12/04/2025

<b>FROM</b>	0.04000ml of E3986 + 0.04000ml of S11606 + 0.04000ml of S11712 + 0.04000ml of S11791 + 0.04000ml of S12802 + 0.10000ml of S12805 + 0.10000ml of S12823 + 0.20000ml of S12564 + 0.20000ml of S13249 + 0.20000ml of S13299 = Final Quantity: 1.000 ml
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<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3866	SFAM ICV 20 PPM	<a href="#">SP6930</a>	11/21/2025	03/03/2026	Jagrut Upadhyay	None	None	Rahul Chavli 12/04/2025

<b>FROM</b>	0.01000ml of S13183 + 0.90000ml of E3986 + 0.10000ml of SP6929 = Final Quantity: 1.010 ml
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Fax : 908 789 8922



## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	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)	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	11/14/2025 / RUPESH	11/05/2025 / RUPESH	E3986

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 #
Absolute Standards, Inc.	98496 / 1,2,3,4-Tetrachlorobenzene, 5000 ug/mL, in MeCl2	051922	03/03/2026	09/03/2025 / Jagrut	10/02/2023 / Kiran	S11606

## CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32208 / atrazine, 1,000 µg/mL in acetone, 1 mL/ampul	A0202634	05/21/2026	11/21/2025 / Jagrut	11/21/2023 / rahul	S11870

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32208 / atrazine, 1,000 µg/mL in acetone, 1 mL/ampul	A0202634	05/21/2026	11/21/2025 / Jagrut	11/21/2023 / rahul	S11871

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31833 / caprolactam, 2,000 µg/mL in methylene chloride, 1 mL/ampul	A0209230	03/31/2026	11/21/2025 / Jagrut	03/27/2024 / Rahul	S12228

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30409 / Pyridine, 2000 PPM in P & T Methanol	A0206650	04/08/2026	10/08/2025 / Jagrut	05/14/2024 / Rahul	S12246

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30409 / Pyridine, 2000 PPM in P & T Methanol	A0206650	05/21/2026	11/21/2025 / Jagrut	05/14/2024 / Rahul	S12247

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	98496 / 1,2,3,4-Tetrachlorobenzene, 5000 ug/mL, in MeCl <sub>2</sub>	040524	04/08/2026	10/08/2025 / Jagrut	05/15/2024 / Rahul	S12256

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	98495 / Pentachlorobenzene, 5000 ug/mL, in MeCl <sub>2</sub>	111722	04/08/2026	10/08/2025 / Jagrut	05/15/2024 / Rahul	S12262

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31902 / CLP/SVOA Additions Mix (Atrazine, Benzaldehyde, Caprolactam) 1000ug/mL	A0206859	01/31/2026	10/08/2025 / Jagrut	05/30/2024 / Rahul	S12308

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]	A0214017	07/31/2026	11/17/2025 / Jagrut	07/23/2024 / RAHUL	S12564

[CS 4978-2]

## 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	33017 / Benzaldehyde, 2000 ug/ml	A0208538	03/31/2026	11/21/2025 / Jagrut	09/20/2024 / anahy	S12675

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	11/07/2025 / Jagrut	10/08/2024 / anahy	S12740

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	04/08/2026	10/08/2025 / Jagrut	11/08/2024 / anahy	S12777

## CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	98495 / Pentachlorobenzene, 5000 ug/mL, in MeCl <sub>2</sub>	111324	05/21/2026	11/21/2025 / Jagrut	11/14/2024 / anahy	S12802

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31046 / Pyridine-d <sub>5</sub> , Solvent Methylene Chloride, 2000 ug/L	A0219219	04/08/2026	10/08/2025 / Jagrut	11/25/2024 / anahy	S12805

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31810 / SV Mix, OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL, 2000ug/mL, CH <sub>2</sub> Cl <sub>2</sub>	A0219252	04/08/2026	10/08/2025 / Jagrut	11/27/2024 / anahy	S12823

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31810 / SV Mix, OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL, 2000ug/mL, CH <sub>2</sub> Cl <sub>2</sub>	A0219252	05/21/2026	11/21/2025 / Jagrut	11/27/2024 / anahy	S12824

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31810 / SV Mix, OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL, 2000ug/mL, CH <sub>2</sub> Cl <sub>2</sub>	A0219252	05/21/2026	11/21/2025 / Jagrut	11/27/2024 / anahy	S12826

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31046 / Pyridine-d5, Solvent Methylene Chloride, 2000 ug/L	A0219219	05/21/2026	11/21/2025 / Jagrut	12/09/2024 / anahy	S12870

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31046 / Pyridine-d5, Solvent Methylene Chloride, 2000 ug/L	A0219219	05/21/2026	11/21/2025 / Jagrut	12/09/2024 / anahy	S12871

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	04/08/2026	10/08/2025 / Jagrut	05/20/2025 / Rahul	S13121

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	04/02/2026	10/02/2025 / Rahul	06/02/2025 / anahy	S13177

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	05/13/2026	11/13/2025 / rahul	06/02/2025 / anahy	S13183

## 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, CH <sub>2</sub> Cl <sub>2</sub> , 1mL	A0224359	05/21/2026	11/21/2025 / Jagrut	06/02/2025 / anahy	S13184

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]	A0228451	04/27/2026	10/27/2025 / Jagrut	08/06/2025 / Rahul	S13249

[CS 4978-1]

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, CH <sub>2</sub> Cl <sub>2</sub> [New Solvent 100% CH <sub>2</sub> Cl <sub>2</sub> ]	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  
QUÍMICOS  
MONTERREY, S.A. DE C.V.**

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# CERTIFICATE OF ANALYSIS

PRODUCT :	SODIUM SULFATE CRYSTALS ANHYDROUS		
QUALITY :	ACS (CODE RMB3375)	FORMULA :	Na <sub>2</sub> SO <sub>4</sub>
SPECIFICATION NUMBER:	6399	RELEASE DATE:	MAY/23/2024
LOT NUMBER :	417203		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na <sub>2</sub> SO <sub>4</sub> )	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 <sub>4</sub> )	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 foreign 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.

RE-02-01, Ed. 3

E 3875



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



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)	$\leq 5$	1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	$\leq 10$	1
Assay (CH <sub>2</sub> Cl <sub>2</sub> ) (by GC, exclusive of preservative, corrected for water)	$\geq 99.8 \%$	100.0 %
Color (APHA)	$\leq 10$	5
Residue after Evaporation	$\leq 1.0$ ppm	0.1 ppm
Titration Acid ( $\mu$ eq/g)	$\leq 0.3$	$< 0.1$
Chloride (Cl)	$\leq 10$ ppm	$< 5$ ppm
Water (by KF, coulometric)	$\leq 0.02 \%$	$< 0.01 \%$

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

Jamie Croak  
Director Quality Operations, Bioscience Production

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



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)	$\leq 5$	1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	$\leq 10$	1
Assay ( $\text{CH}_2\text{Cl}_2$ ) (by GC, exclusive of preservative, corrected for water)	$\geq 99.8\%$	100.0%
Color (APHA)	$\leq 10$	5
Residue after Evaporation	$\leq 1.0$ ppm	0.1 ppm
Titration Acid ( $\mu\text{eq/g}$ )	$\leq 0.3$	$< 0.1$
Chloride (Cl)	$\leq 10$ ppm	$< 5$ ppm
Water (by KF, coulometric)	$\leq 0.02\%$	$< 0.01\%$

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

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™



M6186

Recieve Date :- 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 <sub>2</sub> SO <sub>4</sub> )	95.0 - 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS - Color (APHA)	≤ 10	5
ACS - Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS - Substances Reducing Permanganate (as SO <sub>2</sub> )	≤ 2 ppm	< 2 ppm
Ammonium (NH <sub>4</sub> )	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO <sub>3</sub> )	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO <sub>4</sub> )	≤ 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



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

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

For Laboratory, Research, or Manufacturing Use

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

  
Jamie Ethier  
Vice President Global Quality



**CERTIFIED WEIGHT REPORT**

Part Number: **98496**  
Lot Number: **051922**  
Description: **1,2,3,4-Tetrachlorobenzene**

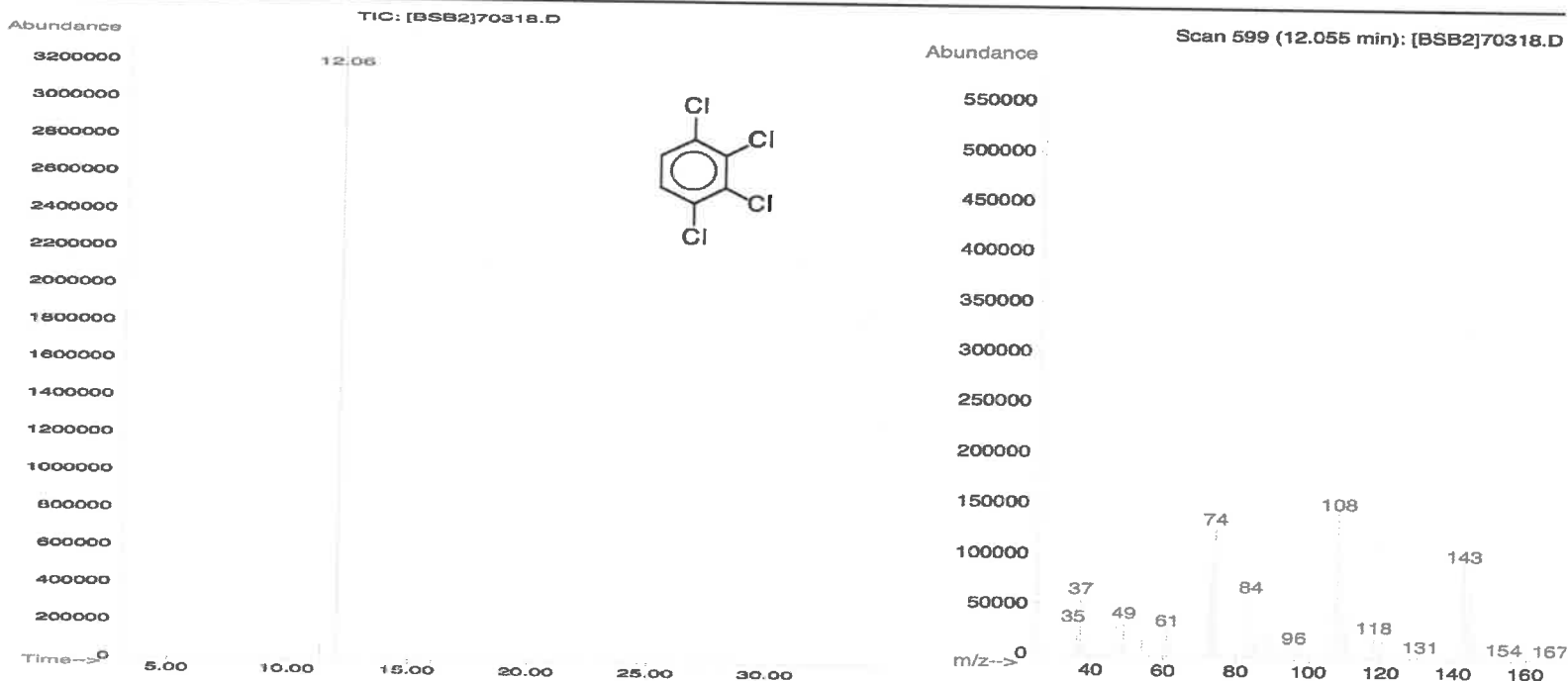
Solvent(s): **Methylene chloride**  
Lot#: **105345**

Formulated By: *Prashant*  
Reviewed By: *Pedro L. R.*

Expiration Date: **051927**  
Recommended Storage: **Refrigerate (4 °C)**  
Nominal Concentration (µg/mL): **5000**  
NIST Test ID#: **6UTB**  
Weight(s) shown below were combined and diluted to (mL): **20.0**  
5E-05 Balance Uncertainty  
0.006 Flask Uncertainty

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 Info (Solvent Safety Info)
1. 1,2,3,4-Tetrachlorobenzene	318	FBW01	5000	97.3	0.2	0.10297	0.10300	5001.7	21.3	634-66-2 N/

Method GC8MSD-3.M: Column: (30m X 0.25mm ID X 0.25µm film thickness), Temp 1 = 50°C (1min.), Temp 2 = 300°C (4 min.), Rate = 10°C/min., Injector B= 200°C. Analysis performed by Nicole Poisson.



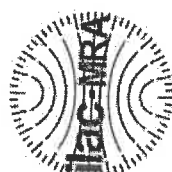
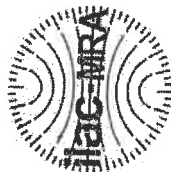
- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, 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).



CERTIFIED REFERENCE MATERIAL

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Fax: 1-814-353-1309

www.restek.com



## Certificate of Analysis

chromatographic plus

**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

Description: 1,4-dioxane-d8 Standard

Container Size: 2 mL

Expiration Date: July 31, 2026

Lot No.: A0199745

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

Pkg Amt: > 1 mL

Storage: 0°C or colder

Ship: Ambient

511707 RC  
↓  
511718 11/21/23

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

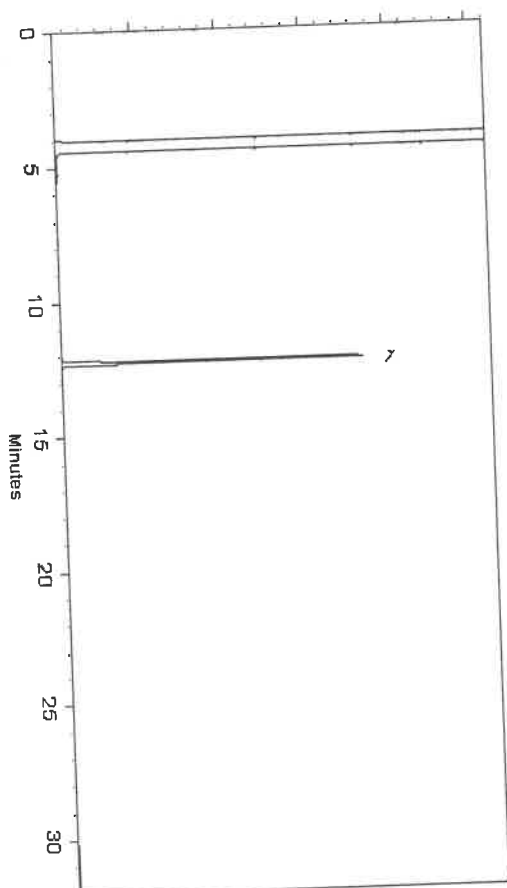
FID

**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.

*[Signature]*  
**Daniel Masson - Operations Tech I**

**Date Mixed:**

10-Jul-2023

**Balance Serial #**

1127510105

*[Signature]*  
**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:

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

$k$  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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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus



### 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*  
Sam Moodler - Operations Tech I

Date Mixed: 30-Mar-2023

Balance Serial # B707717271

*Jennifer Pollino*  
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.
- 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:

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

$k$  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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# Certificate of Analysis

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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

**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

S11828  
↓  
S11832 } RC/  
11/30/23

## 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:**

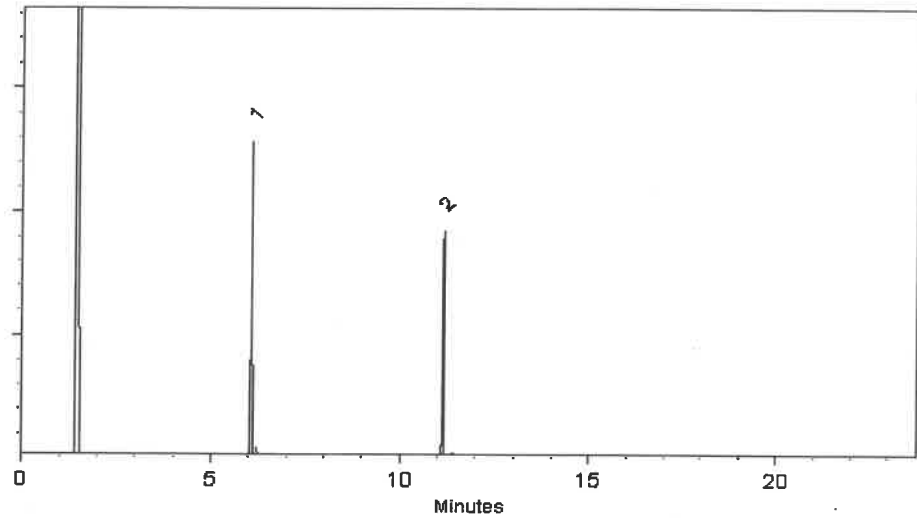
FID

**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:

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

$k$  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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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

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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. :** 32208 **Lot No.:** A0202634

**Description :** Atrazine Standard  
Atrazine Standard 1000 µg/mL, Acetone, 1mL/ampul

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

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

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

511853  
↓  
511876 } RC / 11/30/23

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Atrazine	1912-24-9	5FYWL	99%	1,009.4 µg/mL	+/- 45.1186

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

**Solvent:** Acetone  
**CAS #** 67-64-1  
**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:**

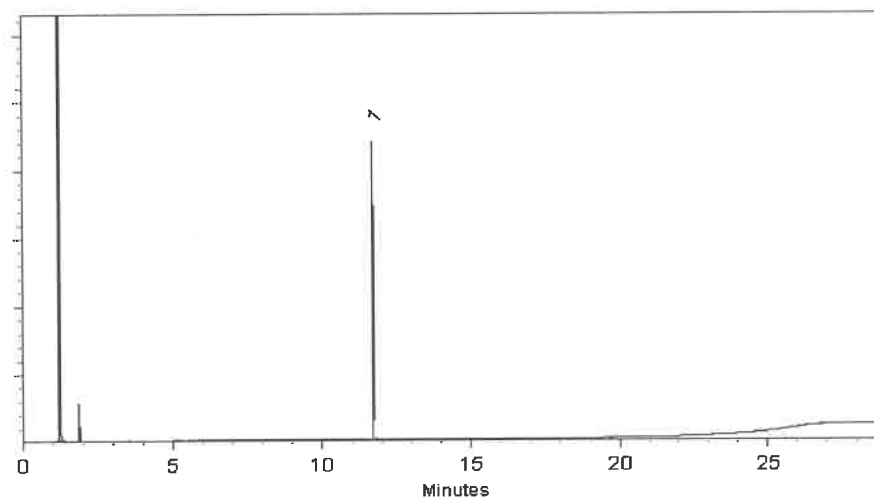
FID

**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.

  
Peter Robbins - Operations Technician I

Date Mixed: 29-Sep-2023

Balance Serial # 1128353505

  
Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 03-Oct-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/ $\mu$ ECD, 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:

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

$k$  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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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

*chromatographic plus*



### 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. :** 32208 **Lot No.:** A0202634

**Description :** Atrazine Standard  
Atrazine Standard 1000 µg/mL, Acetone, 1mL/ampul

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

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

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

511853  
↓  
511876 } RC / 11/30/23

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Atrazine	1912-24-9	5FYWL	99%	1,009.4 µg/mL	+/- 45.1186

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

**Solvent:** Acetone  
**CAS #** 67-64-1  
**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:**

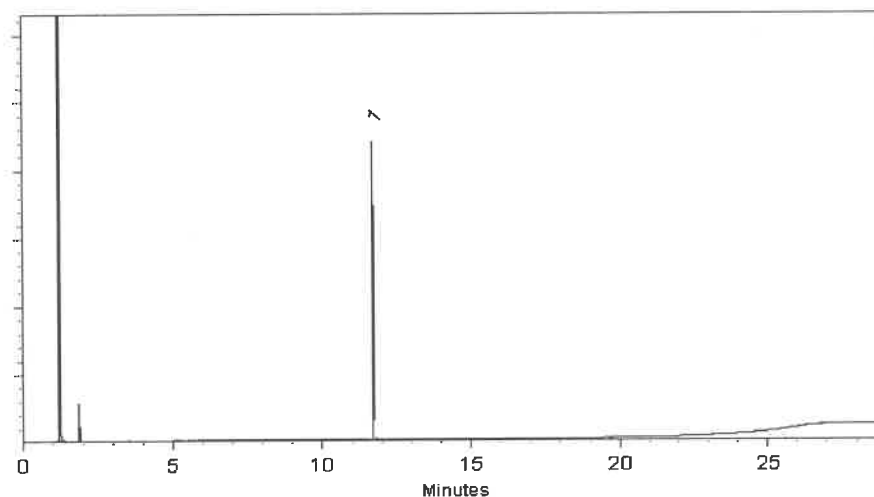
FID

**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.

  
Peter Robbins - Operations Technician I

Date Mixed: 29-Sep-2023

Balance Serial # 1128353505

  
Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 03-Oct-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/ $\mu$ ECD, 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:

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

$k$  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.







110 Benner Circle  
Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus



### 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. :** 31833 **Lot No.:** A0209230  
**Description :** Epsilon-Caprolactam Standard  
Epsilon-caprolactam Std 2000µg/mL, Methylene Chloride(Methanol free),  
1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** March 31, 2026 **Storage:** 10°C or colder  
**Ship:** Ambient

512222 } RC/  
↓  
512231 } 03/28/24

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	epsilon-Caprolactam	105-60-2	I16X016	99%	2,005.0 µg/mL	+/- 39.7996

\* 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:**

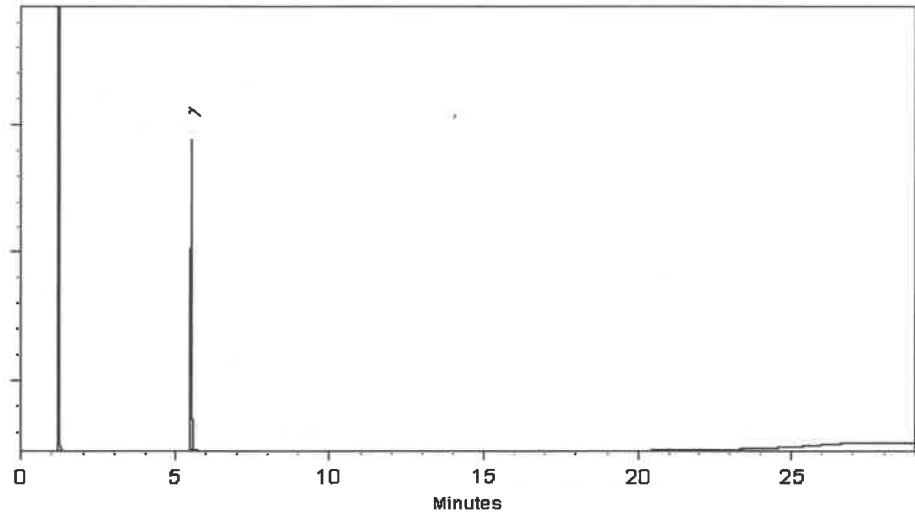
FID

**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.

  
Ethan Winiarski - Operations Tech I

Date Mixed: 19-Mar-2024

Balance Serial # 1128360905

  
Dillan Murphy - Operations Technician I

Date Passed: 25-Mar-2024

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



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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

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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. :** 30409 **Lot No.:** A0206650  
**Description :** Pyridine Standard  
Pyridine 2000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** October 31, 2027 **Storage:** 0°C or colder  
**Ship:** Ambient

512242 } RC/  
↓  
512254 } 5/15/24

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBP6240	99%	2,020.0 µg/mL	+/- 33.0924

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

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

## 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:**

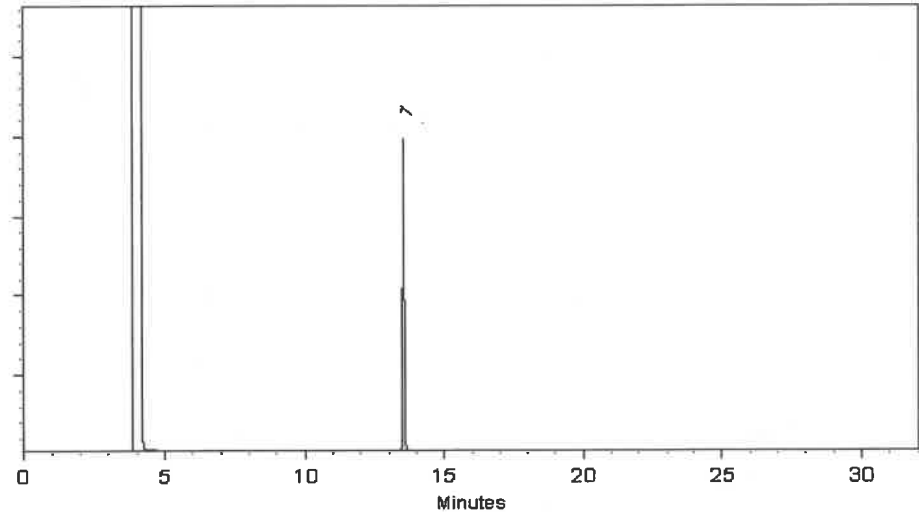
FID

**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.

*Sam Moodler*  
Sam Moodler - Operations Tech I

Date Mixed: 16-Jan-2024

Balance Serial # B707717271

*Jennifer Pollino*  
Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 18-Jan-2024

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



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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus



### 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. :** 30409 **Lot No.:** A0206650  
**Description :** Pyridine Standard  
Pyridine 2000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** October 31, 2027 **Storage:** 0°C or colder  
**Ship:** Ambient

512242 } RC/  
↓  
512254 } 5/15/24

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBP6240	99%	2,020.0 µg/mL	+/- 33.0924

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

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

## 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:**

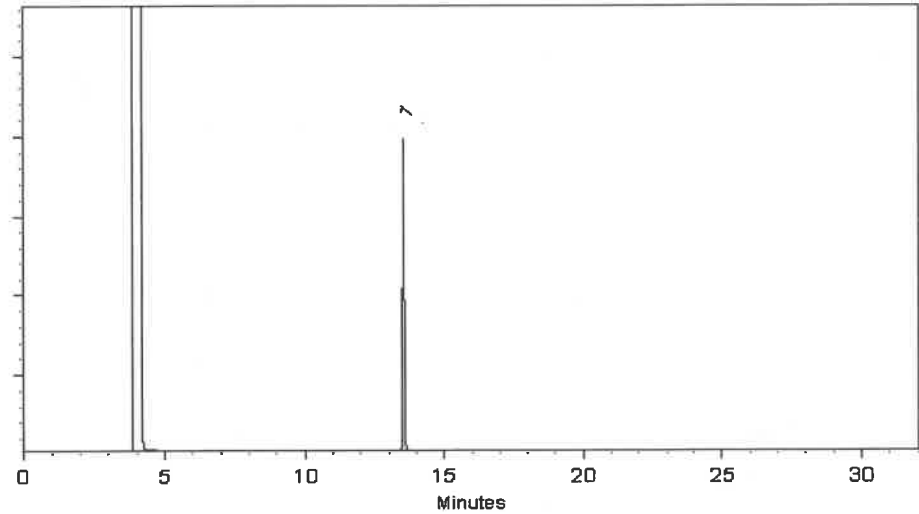
FID

**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.

*Sam Moodler*  
Sam Moodler - Operations Tech I

Date Mixed: 16-Jan-2024

Balance Serial # B707717271

*Jennifer Pollino*  
Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 18-Jan-2024

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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT

Part Number: 98496  
Lot Number: 040524  
Description: 1,2,3,4-Tetrachlorobenzene

Solvent(s): Lot#  
Methylene chloride 23030243

Expiration Date: 040529  
Recommended Storage: Refrigerate (4 °C)  
Nominal Concentration (µg/mL): 5000  
NIST Test ID#: 6UTB

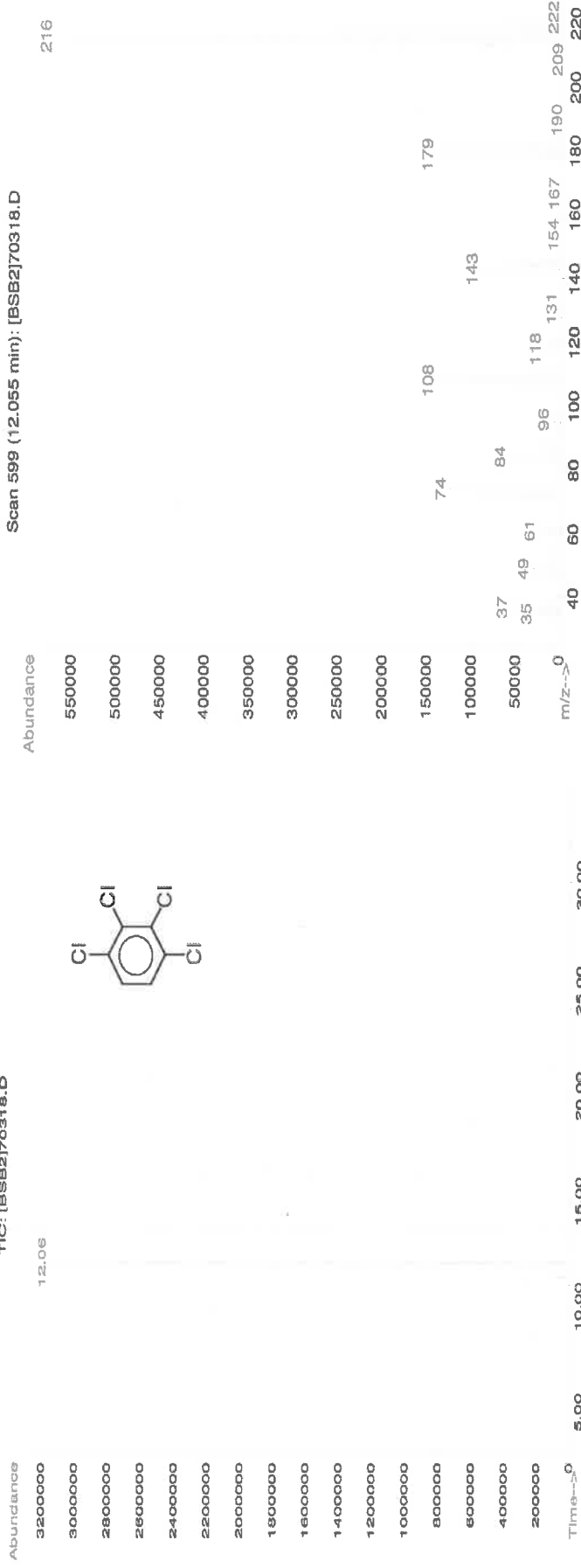
5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

Weight(s) shown below were combined and diluted to (mL):

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Purity Uncertainty	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
1. 1,2,3,4-Tetrachlorobenzene	318	FBW01	5000	97.3	0.2	0.25709	0.25742	5006.4	20.7	634-66-2	N/A	or-rat 1167mg/kg

Method GC8MSD-3.M: Column: (30m X 0.25mm ID X 0.25µm film thickness), Temp 1 = 50°C (1min.), Temp 2 = 300°C (4 min.), Rate = 10°C/min., Injector B = 200°C, Detector B = 300°C. Analysis performed by Nicole Poisson.

TIC: (BSB2)70318.D



• 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 certified (+/-) 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).

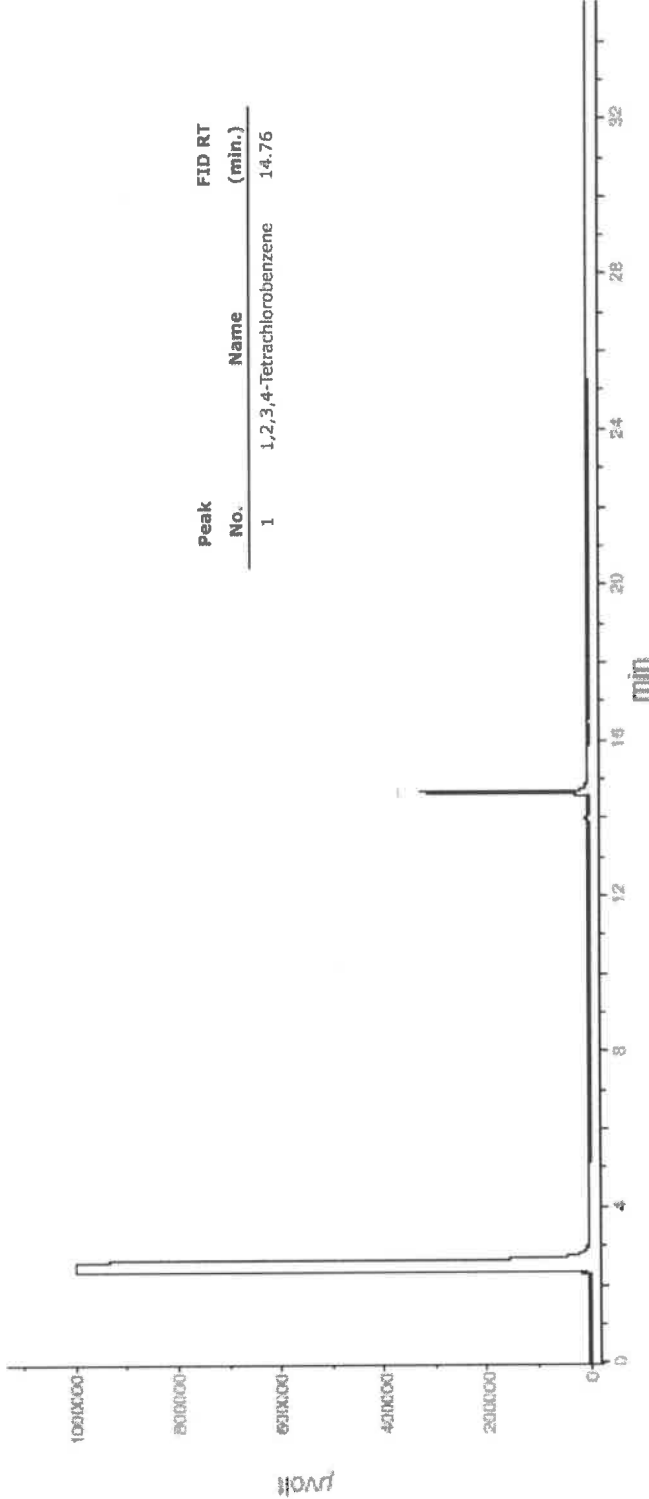


# Run 83, "P98496 L040524 [5000µg/mL in MeCl2]"

Run Length: 35.00 min, 20999 points at 10 points/second.  
Created: Mon, May 13, 2024 at 11:16:19 AM.  
Sampled: Sequence "050924-GC9M1", Method "GC9-M1".  
Analyzed using Method "GC9-M1".

## Comments

GC9-M1 Analysis by Melissa Stonier  
Column ID Rtx-5 30 meter x 0.53mm x .5um Film Thickness  
Flow rates: Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Hydrogen (detector) = 30 mL,  
Air (detector) = 360 mL  
Oven Temp 1 = 50°C (1 min), Rate = 10°C/min, Oven Temp 2 = 300°C (9 min), Total Run Time = 35 Minutes.  
Injector Temp = 200°C, FID Temp = 300°C, FID Signal = eDaq Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 3



Peak No.	Name	FID RT (min.)
1	1,2,3,4-Tetrachlorobenzene	14.76





**Certified Reference Material CRM**



**CERTIFIED WEIGHT REPORT**

Part Number:	98495	Solvent(s):	Lot#
Lot Number:	111722	Methylene chloride	C21F09CAS0000DCM
Description:	Pentachlorobenzene		

Expiration Date:	111727
Recommended Storage:	Refrigerate (4 °C)
Nominal Concentration (µg/mL):	5000
NIST Test ID#:	6UTB

Weight(s) shown below were combined and diluted to (mL): 30.0

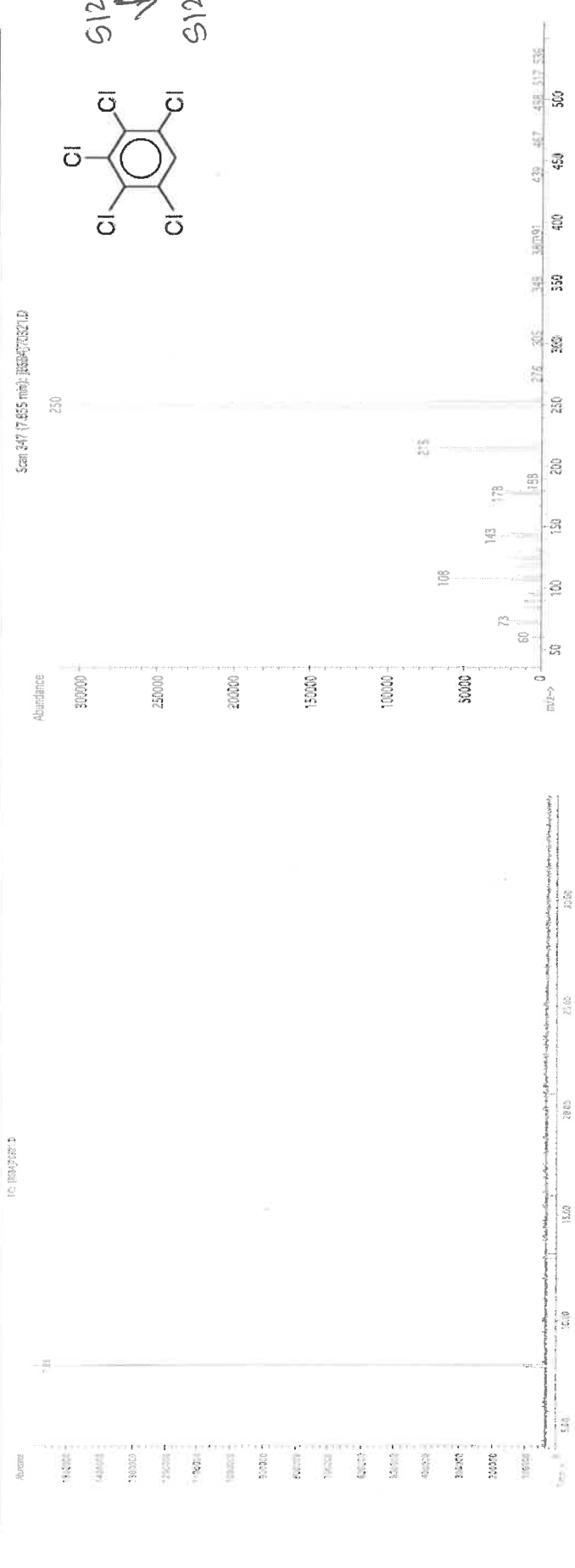
5E-05	Balance Uncertainty
0.0003	F flask Uncertainty

Formulated By:	Prashant Chauhan	111722	DATE
Reviewed By:	Pedro L. Rentas	111722	DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
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1. Pentachlorobenzene 321 2705100 5000 99.5 0.5 0.15084 0.15092 5002.8 50.4 608-93-5 N/A orl-rat 1080mg/kg

Method GC7MSD-1.M: Column: SPB-608 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 150°C (4min.), Temp 2 = 290°C (13.5 min.), Rate = 8°C/min., Injector B= 200°C, Detector B = 290°C. Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Candice Warren.



• 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 certified (+/-) 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).





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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus



### 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. :** 31902 **Lot No.:** A0206859

**Description :** Additions Standard

Additions Standard 1000 µg/mL, Methylene Chloride, 1mL/ampul

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

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

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

512302 } RC/  
↓  
512311 } 5/30/24

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Benzaldehyde	100-52-7	RD231129RSRA	99%	1,005.0 µg/mL	+/- 29.5419
2	epsilon-Caprolactam	105-60-2	I16X016	99%	1,008.8 µg/mL	+/- 29.6521
3	Atrazine	1912-24-9	5FYWL	99%	1,008.8 µg/mL	+/- 29.6521

\* 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:**

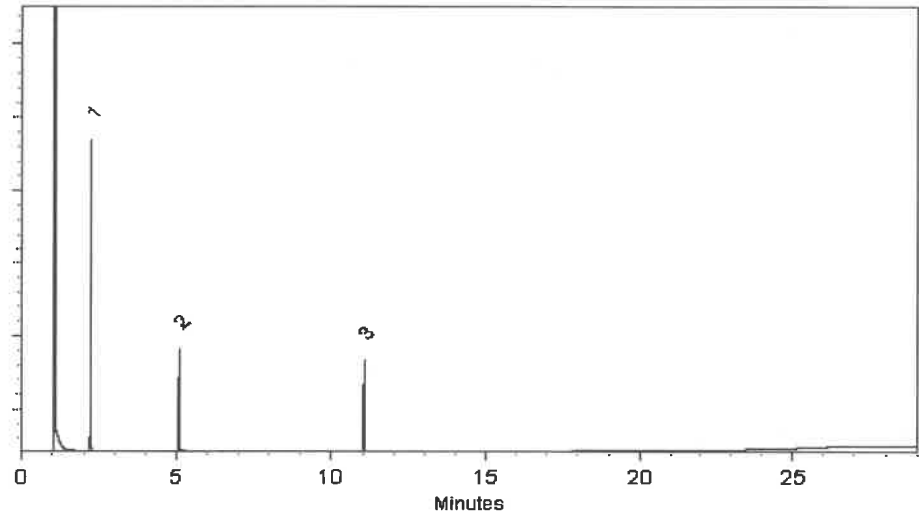
FID

**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.

Stacey Wanner - Operations Technician I

Date Mixed: 23-Jan-2024

Balance Serial # B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 24-Jan-2024

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



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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

gravimetric



### 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. :** 555224 **Lot No.:** A0214017

**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 :** July 31, 2026 **Storage:** 10°C or colder

**Ship:** Ambient

### CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2,4,5-Tetrachlorobenzene	95-94-3	MKCT9480	99%	1,005.0 µg/mL	+/- 29.541899
2	Acetophenone	98-86-2	STBH8205	99%	1,005.0 µg/mL	+/- 29.541899
3	Benzaldehyde	100-52-7	RD231129RSRA	99%	1,008.0 µg/mL	+/- 29.630084
4	Benzoic acid	65-85-0	MKCR2694	99%	1,010.0 µg/mL	+/- 29.688874
5	Biphenyl	92-52-4	MKCS5928	99%	1,008.0 µg/mL	+/- 29.630084

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

S12509 } RC/  
↓  
S12568 } 7/24/24

  
Jess Hoy - Operations Tech I

Date Mixed: 18-Jul-2024

Balance: 1128360905

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:

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

$k$  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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## CERTIFIED REFERENCE MATERIAL

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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 } RC  
↓  
S12576 } 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:**

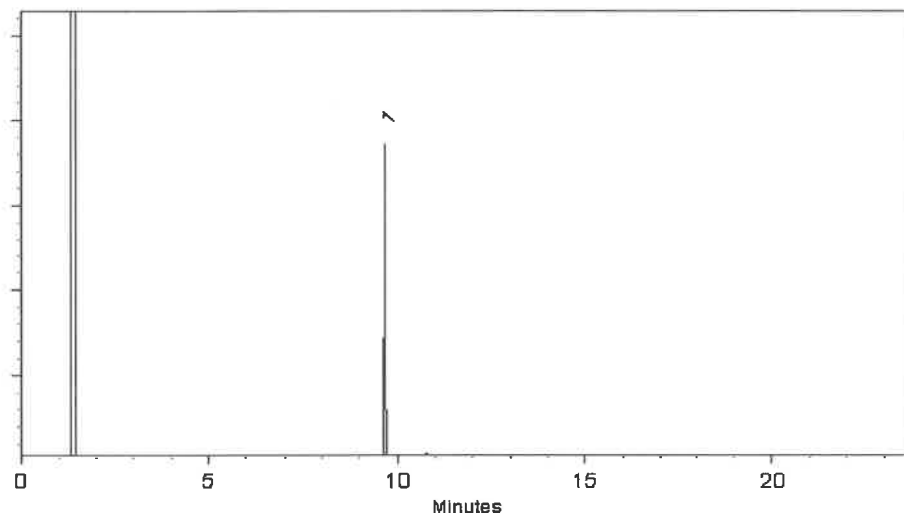
FID

**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*  
**Wilner Torres - Operation Tech I**

**Date Mixed:** 29-Mar-2024

**Balance Serial #** B345965662

*Jennifer Pollino*  
**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





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



### 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. :** 33017 **Lot No.:** A0208538  
**Description :** Benzaldehyde Standard  
Benzaldehyde Standard 2,000µg/mL, Methylene chloride, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** March 31, 2026 **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	Benzaldehyde	100-52-7	RD231129RSRA	99%	2,009.3 µg/mL	+/- 59.0355

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

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

S12675 } AC  
↓  
S12684 } 10/1/24



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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.*

**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

**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

S12736 } AC  
↓  
S12754 } 10/9/24

### 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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### 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

**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

S12736 } AC  
↓  
S12754 } 10/9/24

### 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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### 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

**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

S12736 } AC  
↓  
S12754 } 10/9/24

### 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.





**Certified Reference Material CRM**



**CERTIFIED WEIGHT REPORT**

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

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

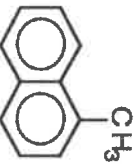
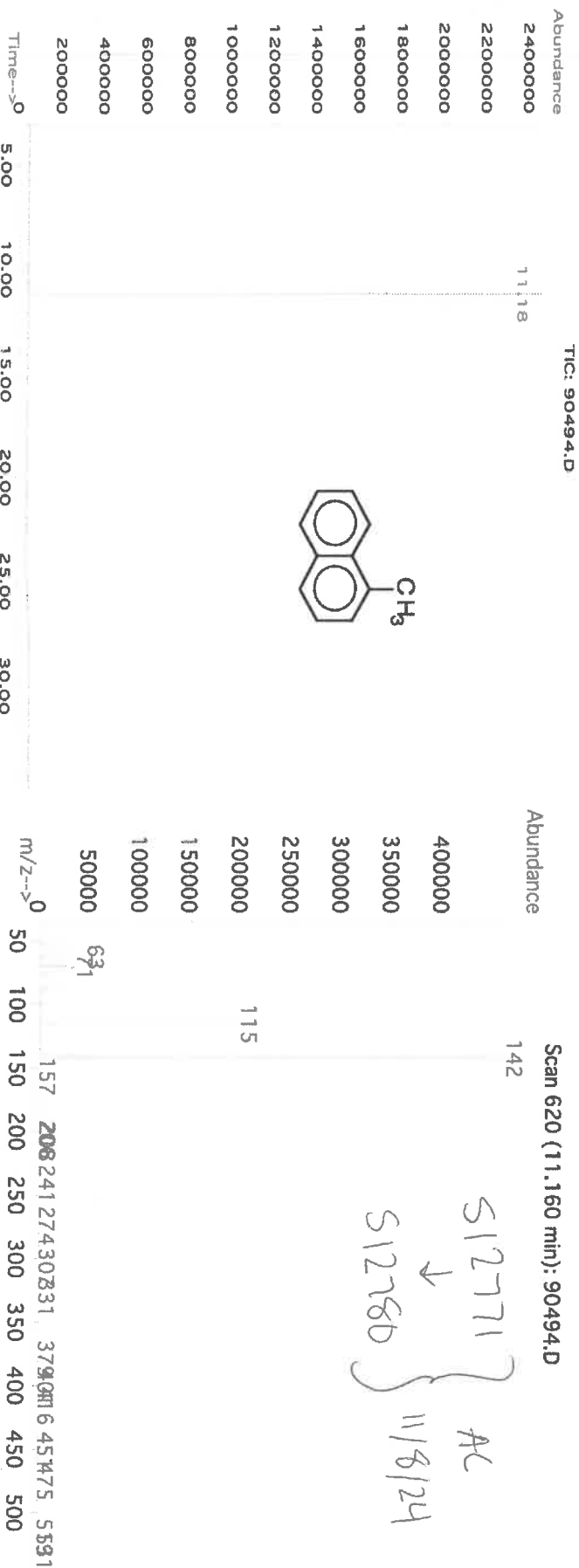
**Expiration Date:** 061328  
**Recommended Storage:** Refrigerate (4 °C)  
**Nominal Concentration (µg/mL):** 2000  
**NIST Test ID#:** 6UTB  
**Weight(s) shown below were combined and diluted to (mL):** 100.0  
**SE-05 Balance Uncertainty:** 0.031  
**Flask Uncertainty:**

Formulated By: <i>Prahsant Chauhan</i>	061323
Reviewed By: <i>Pedro L. Farias</i>	061323
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)	CAS#	OSHA PEL (TWA)	LD50
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1. 1-Methylnaphthalene 313 04413BX 2000 98 0.2 0.20417 0.20430 2001.2 8.3 90-12-0 N/A or: 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.



- 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 certified (±) 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 Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



**Certified Reference Material CRM**



**CERTIFIED WEIGHT REPORT**

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

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

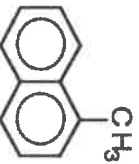
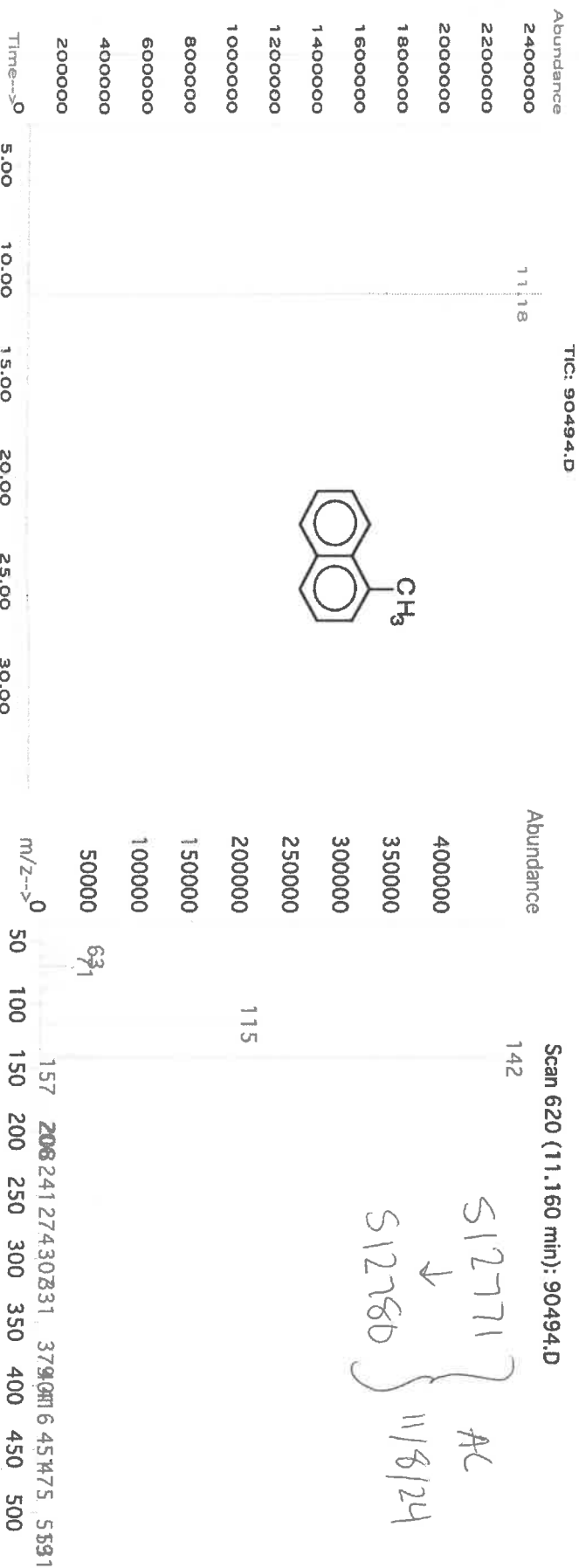
**Expiration Date:** 061328  
**Recommended Storage:** Refrigerate (4 °C)  
**Nominal Concentration (µg/mL):** 2000  
**NIST Test ID#:** 6UTB  
**Weight(s) shown below were combined and diluted to (mL):** 100.0  
**5E-05 Balance Uncertainty**  
**0.031 Flask Uncertainty**

Formulated By: <i>Praeshant Chauhan</i>	061323
Reviewed By: <i>Pedro L. Farias</i>	061323
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)	CAS#	OSHA PEL (TWA)	LD50
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1. 1-Methylnaphthalene 313 04413BX 2000 98 0.2 0.20417 0.20430 2001.2 8.3 90-12-0 N/A or: 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.



- 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 certified (±) 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 Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



**Certified Reference Material CRM**



**CERTIFIED WEIGHT REPORT**

**Part Number:** 98495  
**Lot Number:** 111324  
**Description:** Pentachlorobenzene

**Solvent(s):** Methylene chloride  
**Lot#** 23343

Formulated By: Anthony Mahoney	111324
DATE	DATE
Reviewed By: Pedro L. Rientas	111324
DATE	DATE

**Expiration Date:** 111329  
**Recommended Storage:** Refrigerate (4 °C)  
**Nominal Concentration (µg/mL):** 5000  
**NIST Test ID#:** 6UTB

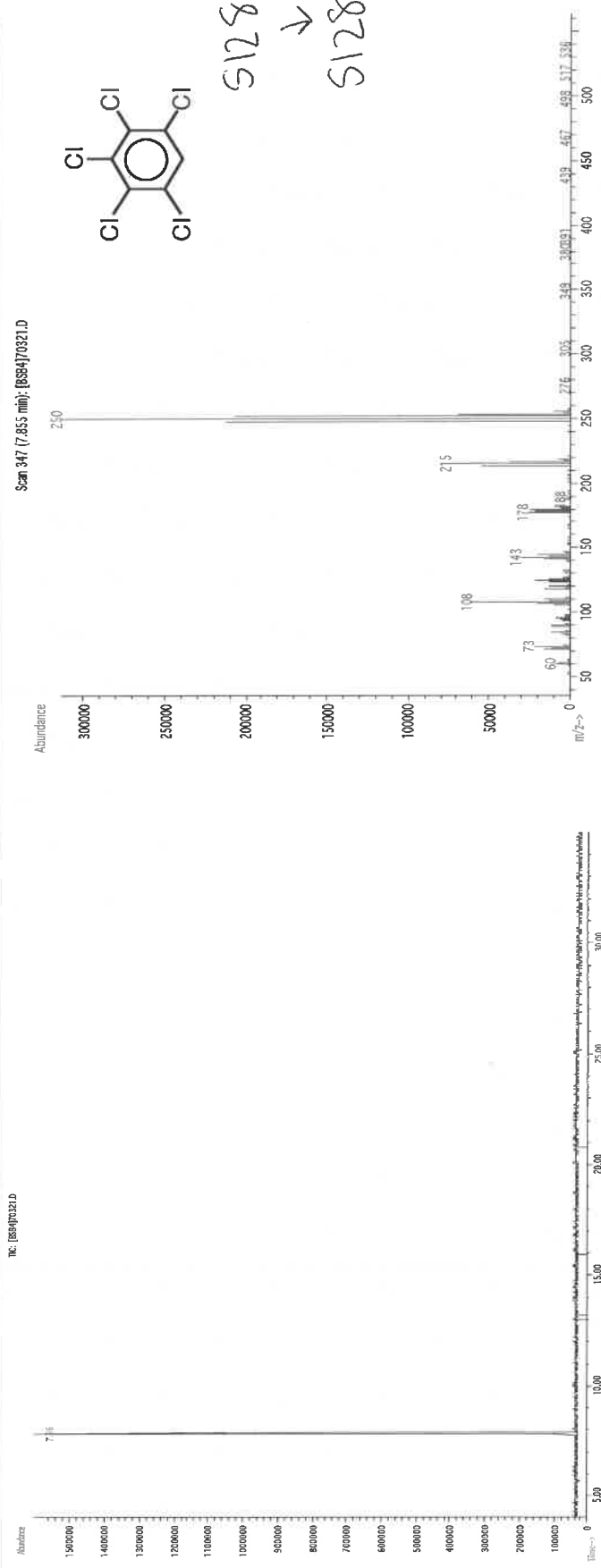
5E-05 Balance Uncertainty  
0.002 Flask Uncertainty

Weight(s) shown below were combined and diluted to (mL): 30.0

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty	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. Pentachlorobenzene 321 2705100 5000 99.5 0.5 0.15086 0.15103 5005.7 50.4 608-93-5 N/A orl-rat 1080mg/kg

**Method GC7MSD-1.M:** Column: SPB-608 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 150°C (4min.), Temp 2 = 290°C (13.5 min.), Rate = 8°C/min., Injector B = 200°C, Detector B = 290°C. Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Candice Warren.



- 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 certified (+/-) 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).





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# Certificate of Analysis

*chromatographic plus*



**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. :** 31046 **Lot No.:** A0219219

**Description :** Pyridine-d5 Mix

Pyridine-d5 2000µg/mL, Methylene Chloride, 1mL/ampul

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

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

**Ship:** Ambient

312805 } AC  
↓  
312819 } 11/25/24

## CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine-d5	7291-22-7	M-317	99%	2,012.5 µg/mL	+/- 35.9772

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

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



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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. :** 31810 **Lot No.:** A0219252

**Description :** OLC03.2 SVOA Deuterated Monitoring Compounds Mix

OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL/ampul, Methylene Chloride, 2000µg/mL

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

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

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

512820 } AC  
↓  
512839 } 11/27/24

## CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Phenol-d5	4165-62-2	HJ-481	99%	2,005.0 µg/mL	+/- 60.6483
2	bis(2-Chloroethyl) ether-d8	93952-02-4	PR-31659	99%	2,004.5 µg/mL	+/- 60.6332
3	2-Chlorophenol-d4	93951-73-6	PR-30568	99%	2,013.0 µg/mL	+/- 60.8903
4	4-Methylphenol-d8	190780-66-6	PR-25303	99%	2,010.0 µg/mL	+/- 60.7996
5	Nitrobenzene-d5	4165-60-0	PR-33424A	99%	2,011.0 µg/mL	+/- 60.8298
6	2-Nitrophenol-d4	93951-78-1	H-151	99%	2,011.0 µg/mL	+/- 60.8298
7	2,4-Dichlorophenol-d3	93951-74-7	JK-447	99%	2,012.3 µg/mL	+/- 60.8691
8	4-Chloroaniline-d4	191656-33-4	FG-142	99%	2,002.1 µg/mL	+/- 60.5606
9	Dimethylphthalate-d6	85448-30-2	X-477	99%	2,020.0 µg/mL	+/- 61.1021
10	Acenaphthylene-d8	93951-97-4	FG-239	99%	2,011.7 µg/mL	+/- 60.8510
11	4-Nitrophenol-d4	93951-79-2	FG-377	98%	2,015.0 µg/mL	+/- 60.9502
12	Fluorene-d10	81103-79-9	FG-335	99%	2,015.2 µg/mL	+/- 60.9569
13	4,6-Dinitro-2-methylphenol-d2	93951-76-9	FG-143	99%	2,017.3 µg/mL	+/- 61.0204
14	Anthracene-d10	1719-06-8	PR-31411	99%	2,013.2 µg/mL	+/- 60.8964
15	Pyrene-d10	1718-52-1	PR-30304	99%	2,013.2 µg/mL	+/- 60.8964
16	Benzo(a)pyrene-d12	63466-71-7	PR-34192A	99%	2,000.7 µg/mL	+/- 60.5183



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## FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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**Catalog No. :** 31810 **Lot No.:** A0219252

**Description :** OLC03.2 SVOA Deuterated Monitoring Compounds Mix

OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL/ampul, Methylene Chloride, 2000µg/mL

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

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

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

512820 } AC  
↓  
512839 } 11/27/24

## CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Phenol-d5	4165-62-2	HJ-481	99%	2,005.0 µg/mL	+/- 60.6483
2	bis(2-Chloroethyl) ether-d8	93952-02-4	PR-31659	99%	2,004.5 µg/mL	+/- 60.6332
3	2-Chlorophenol-d4	93951-73-6	PR-30568	99%	2,013.0 µg/mL	+/- 60.8903
4	4-Methylphenol-d8	190780-66-6	PR-25303	99%	2,010.0 µg/mL	+/- 60.7996
5	Nitrobenzene-d5	4165-60-0	PR-33424A	99%	2,011.0 µg/mL	+/- 60.8298
6	2-Nitrophenol-d4	93951-78-1	H-151	99%	2,011.0 µg/mL	+/- 60.8298
7	2,4-Dichlorophenol-d3	93951-74-7	JK-447	99%	2,012.3 µg/mL	+/- 60.8691
8	4-Chloroaniline-d4	191656-33-4	FG-142	99%	2,002.1 µg/mL	+/- 60.5606
9	Dimethylphthalate-d6	85448-30-2	X-477	99%	2,020.0 µg/mL	+/- 61.1021
10	Acenaphthylene-d8	93951-97-4	FG-239	99%	2,011.7 µg/mL	+/- 60.8510
11	4-Nitrophenol-d4	93951-79-2	FG-377	98%	2,015.0 µg/mL	+/- 60.9502
12	Fluorene-d10	81103-79-9	FG-335	99%	2,015.2 µg/mL	+/- 60.9569
13	4,6-Dinitro-2-methylphenol-d2	93951-76-9	FG-143	99%	2,017.3 µg/mL	+/- 61.0204
14	Anthracene-d10	1719-06-8	PR-31411	99%	2,013.2 µg/mL	+/- 60.8964
15	Pyrene-d10	1718-52-1	PR-30304	99%	2,013.2 µg/mL	+/- 60.8964
16	Benzo(a)pyrene-d12	63466-71-7	PR-34192A	99%	2,000.7 µg/mL	+/- 60.5183



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**FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.**

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**Catalog No. :** 31810 **Lot No.:** A0219252

**Description :** OLC03.2 SVOA Deuterated Monitoring Compounds Mix

OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL/ampul, Methylene Chloride, 2000µg/mL

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

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

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

512820 } AC  
↓  
512839 } 11/27/24

## CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Phenol-d5	4165-62-2	HJ-481	99%	2,005.0 µg/mL	+/- 60.6483
2	bis(2-Chloroethyl) ether-d8	93952-02-4	PR-31659	99%	2,004.5 µg/mL	+/- 60.6332
3	2-Chlorophenol-d4	93951-73-6	PR-30568	99%	2,013.0 µg/mL	+/- 60.8903
4	4-Methylphenol-d8	190780-66-6	PR-25303	99%	2,010.0 µg/mL	+/- 60.7996
5	Nitrobenzene-d5	4165-60-0	PR-33424A	99%	2,011.0 µg/mL	+/- 60.8298
6	2-Nitrophenol-d4	93951-78-1	H-151	99%	2,011.0 µg/mL	+/- 60.8298
7	2,4-Dichlorophenol-d3	93951-74-7	JK-447	99%	2,012.3 µg/mL	+/- 60.8691
8	4-Chloroaniline-d4	191656-33-4	FG-142	99%	2,002.1 µg/mL	+/- 60.5606
9	Dimethylphthalate-d6	85448-30-2	X-477	99%	2,020.0 µg/mL	+/- 61.1021
10	Acenaphthylene-d8	93951-97-4	FG-239	99%	2,011.7 µg/mL	+/- 60.8510
11	4-Nitrophenol-d4	93951-79-2	FG-377	98%	2,015.0 µg/mL	+/- 60.9502
12	Fluorene-d10	81103-79-9	FG-335	99%	2,015.2 µg/mL	+/- 60.9569
13	4,6-Dinitro-2-methylphenol-d2	93951-76-9	FG-143	99%	2,017.3 µg/mL	+/- 61.0204
14	Anthracene-d10	1719-06-8	PR-31411	99%	2,013.2 µg/mL	+/- 60.8964
15	Pyrene-d10	1718-52-1	PR-30304	99%	2,013.2 µg/mL	+/- 60.8964
16	Benzo(a)pyrene-d12	63466-71-7	PR-34192A	99%	2,000.7 µg/mL	+/- 60.5183



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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.*

**Catalog No. :** 31046 **Lot No.:** A0219219  
**Description :** Pyridine-d5 Mix  
Pyridine-d5 2000µg/mL, Methylene Chloride, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** August 31, 2028 **Storage:** 10°C or colder  
**Ship:** Ambient

S12870 } AC  
↓  
S12871 } 12/9/24

## CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine-d5	7291-22-7	M-317	99%	2,012.5 µg/mL	+/- 35.9772

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

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



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Tel: 1-814-353-1300  
Fax: 1-814-353-1309

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chromatographic plus



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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.*

**Catalog No. :** 31046 **Lot No.:** A0219219  
**Description :** Pyridine-d5 Mix  
Pyridine-d5 2000µg/mL, Methylene Chloride, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** August 31, 2028 **Storage:** 10°C or colder  
**Ship:** Ambient

S12870 } AC  
↓  
S12871 } 12/9/24

## CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine-d5	7291-22-7	M-317	99%	2,012.5 µg/mL	+/- 35.9772

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

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



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**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 } RC/  
↓  
513147 } 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:**

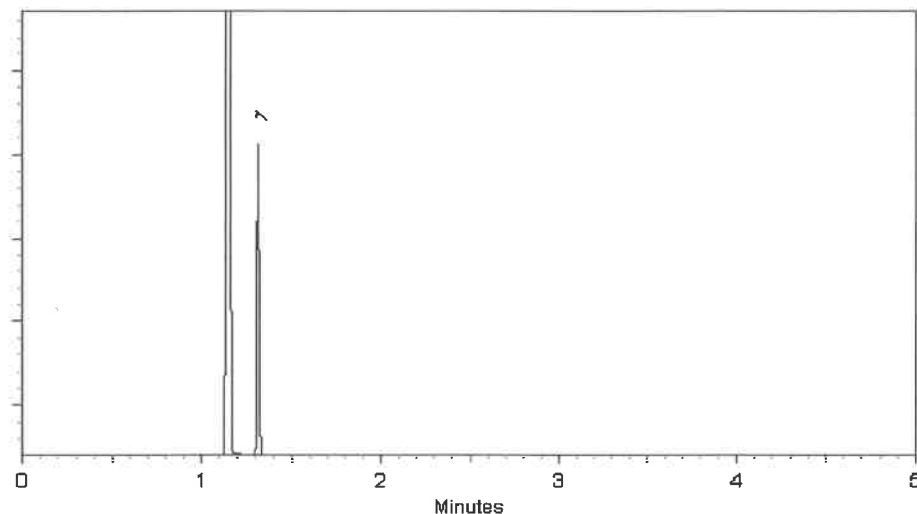
FID

**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 Rignin - 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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*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 } RC/  
↓  
513147 } 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:**

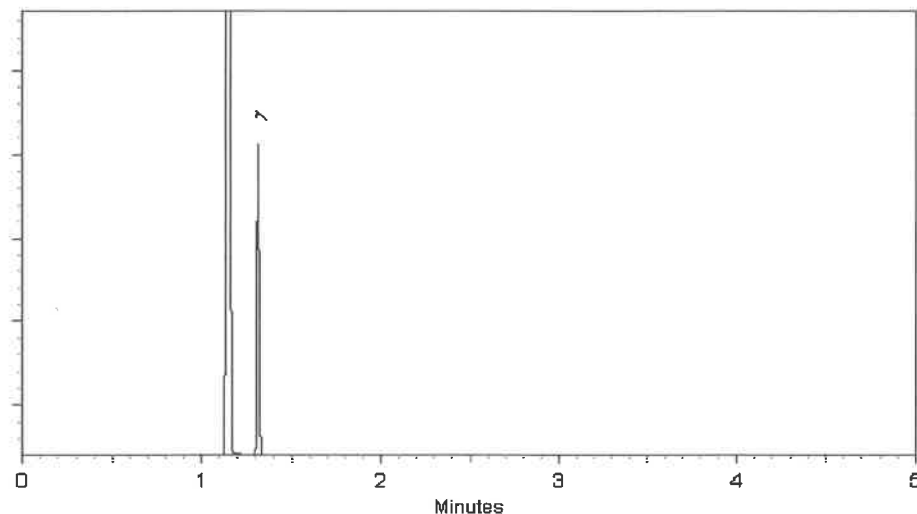
FID

**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 Rignin - 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  
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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.*

**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

**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

S13168  
↓  
S13197 } AC  
6/9/25

### 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%



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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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**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

**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

S13168  
↓  
S13197 } AC  
6/9/25

### 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%



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# Certificate of Analysis

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### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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**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

**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

S13168  
↓  
S13197 } AC  
6/9/25

### 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%



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gravimetric



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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.*

Catalog No. : 555223 Lot No.: A0228451

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, 2027 Storage: 10°C or colder

Handling: This product is photosensitive. Ship: Ambient

S13239 } RC/  
↓  
S13268 } 08/06/25

## CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	3,3'-Dichlorobenzidine	91-94-1	S250226RSR	99%	1,006.0 µg/mL	+/- 23.0947
2	Atrazine	1912-24-9	5FYWL	99%	1,007.0 µg/mL	+/- 23.1176
3	Benzidine	92-87-5	S250227ECS	99%	1,003.0 µg/mL	+/- 23.0258
4	epsilon-Caprolactam	105-60-2	Y16H012	99%	1,003.0 µg/mL	+/- 23.0258

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

Tom Sucka - Mix Technician

Date Mixed: 01-Aug-2025

Balance: 1128360905

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



110 Benner Circle  
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## CERTIFIED REFERENCE MATERIAL

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

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

**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

513299 } RC/  
↓ 10/17/25  
513328 }

### 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:**

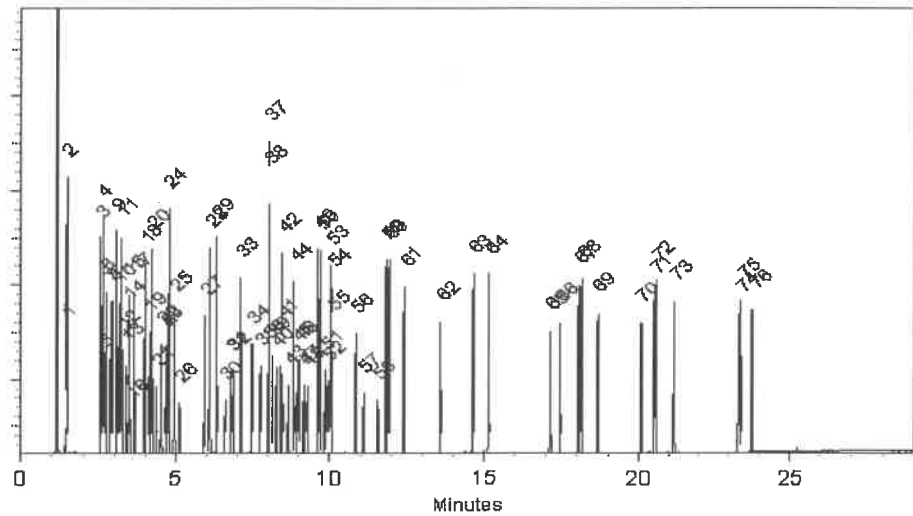
FID

**Split Vent:**


100 mL/min.

**Inj. Vol**

1µl

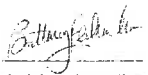


This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

  
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™**



*V14921 to  
V14938*

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 <sub>3</sub> OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Titration Acid (μeq/g)	≤ 0.3	0.3
Titration Base (μeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis - Below EPA 82608 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

*Mark*  
Jamie Croak  
Director Quality Operations, Bioscience Production