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Prep Standard - Chemical Standard Summary

Order ID : Q3015

Test : SVOCMS Group1

Prepbatch ID : PB169719,

Sequence ID/Qc Batch ID: BP091725,

Standard ID :
EP2609,EP2610,EP2639,SP6757,SP6795,SP6796,SP6832,SP6833,SP6834,SP6835,SP6836,SP6837,SP6838,SP6839,SP6840,SP6865,SP6869,

Chemical ID :
10ul/1000ul sample,E3657,E3875,E3904,E3932,E3939,E3942,E3965,E3973,M6157,S10105,S11073,S11484,S11496,S11652,S11808,S12115,S12195,S12197,S12199,S12200,S12216,S12220,S12221,S12272,S12277,S12278,S12498,S12507,S12508,S12544,S12552,S12553,S12554,S12555,S12556,S12557,S12558,S12559,S12577,S12667,S12670,S12903,S12904,S12986,S13057,S13078,S13089,S13090,S13091,S13092,S13093,S13094,S13095,S13096,S13118,S13119,S13120,S13149,S13160,S13175,S13207,S13208,S13209,S13210,S13211,S13239,S13240,S13241,S13242,S13243,S13244,S13269,W3112,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1874	10 N SODIUM HYDROXIDE SOLN	EP2609	05/07/2025	11/07/2025	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Riteshkumar Patel 05/07/2025

FROM 1000.00000ml of W3112 + 400.00000gram of E3657 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
314	1.1 H2SO4 SOLN	EP2610	05/07/2025	11/07/2025	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Riteshkumar Patel 05/07/2025

FROM 1000.00000ml of M6157 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2639	09/12/2025	01/28/2026	Riteshkumar Patel	Extraction_SCALE_2 (EX-SC-2)	None	Evelyn Huang 09/12/2025

FROM 4000.00000gram of E3875 = Final Quantity: 4000.000 gram

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3895	50 ug/ml DFTPP 8270E	SP6757	03/31/2025	09/30/2025	Rahul Chavli	None	None	Jagrut Upadhyay 04/01/2025

FROM 1.00000ml of S12577 + 19.00000ml of E3904 = Final Quantity: 20.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
18	Second Source Calibration Stock Standard, 100 PPM, (8270/625/CLP)	SP6795	06/05/2025	09/18/2025	Jagrut Upadhyay	None	None	Rahul Chavli 06/10/2025

FROM 0.04000ml of S12195 + 0.08000ml of S12216 + 0.10000ml of S11073 + 0.20000ml of S12498 + 0.20000ml of S12544 + 0.20000ml of S12986 + 1.18000ml of E3939 = Final Quantity: 2.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
416	40 ng BNA ICV, 40 PPM	SP6796	06/05/2025	09/18/2025	Jagrut Upadhyay	None	None	Rahul Chavli 06/10/2025

FROM 0.01000ml of S12667 + 0.60000ml of E3939 + 0.40000ml of SP6795 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4178	8270/625.1 Stock Solution-2 100 ng	SP6832	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.20000ml of S13211 + 0.26700ml of S10105 + 0.40000ml of S11496 + 0.40000ml of S12278 + 0.50000ml of S12115 + 0.50000ml of S13209 + 0.50000ml of S13210 + 0.60000ml of S12277 + 1.00000ml of S12272 + 1.00000ml of S13057 + 1.00000ml of S13078 + 1.00000ml of S13208 + 2.63300ml of E3942 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4179	80 ng BNA ICC	SP6833	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.20000ml of E3942 + 0.80000ml of SP6832 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4180	60 ng BNA ICC	SP6834	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.40000ml of E3942 + 0.60000ml of SP6832 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4181	50 ng BNA ICC	SP6835	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.50000ml of E3942 + 0.50000ml of SP6832 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4182	40 ng BNA ICC	SP6836	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.60000ml of E3942 + 0.40000ml of SP6832 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4183	20 ng BNA ICC	SP6837	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.80000ml of E3942 + 0.20000ml of SP6832 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4184	10 ng BNA ICC	SP6838	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.90000ml of E3942 + 0.10000ml of SP6832 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4185	5 ng BNA ICC	SP6839	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.95000ml of E3942 + 0.05000ml of SP6832 = Final Quantity: 1.010 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4186	2.5 ng BNA ICC	SP6840	06/19/2025	10/28/2025	Jagrut Upadhyay	None	None	Rahul Chavli 07/21/2025

FROM 0.01000ml of S12670 + 0.50000ml of E3942 + 0.50000ml of SP6839 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
171	8270/625 Spike Solution, 50/100 PPM	SP6865	08/25/2025	10/30/2025	Jagrut Upadhyay	None	None	Rahul Chavli 08/26/2025

FROM 0.40000ml of S11484 + 0.40000ml of S11652 + 0.40000ml of S12552 + 0.40000ml of S13149 + 0.40000ml of S13160 + 0.40000ml of S13207 + 0.90000ml of S12507 + 0.90000ml of S13089 + 1.10000ml of S13120 + 1.20000ml of S12553 + 1.20000ml of S12554 + 1.20000ml of S12555 + 1.20000ml of S12556 + 1.20000ml of S12557 + 1.20000ml of S12558 + 1.20000ml of S12559 + 1.20000ml of S13269 + 1.30000ml of S11808 + 1.30000ml of S12508 + 1.30000ml of S13090 + 1.30000ml of S13091 + 1.30000ml of S13092 + 1.30000ml of S13093 + 1.30000ml of S13094 + 1.30000ml of S13095 + 1.30000ml of S13096 + 1.30000ml of S13118 + 1.30000ml of S13119 + 1.30000ml of S13239 + 1.30000ml of S13240 + 1.30000ml of S13241 + 1.30000ml of S13242 + 1.30000ml of S13243 + 1.30000ml of S13244 + 163.00000ml of E3932 = Final Quantity: 200.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
19	8270/CLP Surrogate Solution, 100 PPM BN/150 PPM ACID	SP6869	09/10/2025	01/02/2026	Jagrut Upadhyay	None	None	Rahul Chavli 09/16/2025

FROM 3.00000ml of S12197 + 3.00000ml of S12220 + 5.60000ml of S12221 + 5.60000ml of S12903 + 5.80000ml of S12904 + 6.00000ml of S12199 + 6.00000ml of S12200 + 965.00000ml of E3965 = Final Quantity: 1000.000 ml

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CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1	417203	01/28/2026	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)	24K1762005	01/07/2026	03/13/2025 /	12/27/2024 / RUPESH	E3904

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	24H1462005	11/05/2025	05/05/2025 / RUPESH	04/23/2025 / RUPESH	E3932

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	25A2862010	11/22/2025	05/22/2025 / RUPESH	02/28/2025 / RUPESH	E3939

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	25A2862010	12/13/2025	06/13/2025 / Rajesh	02/28/2025 / Rajesh	E3942

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	24H1462005	05/24/2027	08/22/2025 / RUPESH	08/20/2025 / RUPESH	E3965

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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	24i1262013	11/07/2025	05/07/2025 / RUPESH	02/18/2025 / Mohan	M6157

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-112090-04 / CLP Acid Surrogate Solution, 7500 mg/L, 1ml	440246	12/19/2025	06/19/2025 / Jagrut	12/09/2021 / Christian	S10105

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	A0187043	11/16/2025	05/16/2025 / Jagrut	02/06/2023 / Christian	S11073

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555870 / Custom Standard, 2,4-dinitrophenol Std [CS 5328-3]	A0200549	10/30/2025	04/30/2025 / Rahul	08/10/2023 / yogesh	S11484

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-110094-02 / CLP Base/Neutral Surrogate Solution, 5000 mg/L, 1ml	506889	10/28/2025	04/28/2025 / Jagrut	08/11/2023 / Yogesh	S11496

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555872 / Custom Standard, pentachlorophenol Std [CS 5328-5]	A0201728	01/30/2026	07/30/2025 / Rahul	11/09/2023 / Yogesh	S11652

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0200655	02/25/2026	08/25/2025 / Jagrut	11/21/2023 / rahul	S11808

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	z-010223-01 / 1,4-Dioxane Solution, 2,000mg/L, 1ml	454157	10/28/2025	04/28/2025 / Jagrut	03/08/2024 / Rahul	S12115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ ampul	A0206206	09/18/2025	03/18/2025 / anahy	03/15/2024 / Rahul	S12195

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ ampul	A0206206	01/02/2026	07/02/2025 / Jagrut	03/15/2024 / Rahul	S12197

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ ampul	A0206206	03/10/2026	09/10/2025 / Jagrut	03/15/2024 / Rahul	S12199

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ ampul	A0206206	03/10/2026	09/10/2025 / Jagrut	03/15/2024 / Rahul	S12200

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0206381	09/18/2025	03/18/2025 / anahy	03/15/2024 / Rahul	S12216

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0206381	01/02/2026	07/02/2025 / Jagrut	03/15/2024 / Rahul	S12220

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0206381	03/10/2026	09/10/2025 / Jagrut	03/15/2024 / Rahul	S12221

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	z-110381-01 / 8270 Calibration Solution, 76-1, 500 & 1,000 mg/L, 1ml	520963	12/03/2025	06/03/2025 / Jagrut	05/24/2024 / Rahul	S12272

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-010442-07 / Benzaldehyde Solution, 1000 mg/L, 1.3 ml, (Maximum Expiration: 90 Days)	495833	11/05/2025	05/05/2025 / Jagrut	05/24/2024 / Rahul	S12277

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-010442-07 / Benzaldehyde Solution, 1000 mg/L, 1.3 ml, (Maximum Expiration: 90 Days)	495833	12/19/2025	06/19/2025 / Jagrut	05/24/2024 / Rahul	S12278

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0214021	12/04/2025	06/04/2025 / Jagrut	07/23/2024 / RAHUL	S12498

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0214021	01/01/2026	07/01/2025 / Rahul	07/23/2024 / RAHUL	S12507

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0214021	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12508

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	12/04/2025	06/04/2025 / Jagrut	07/23/2024 / RAHUL	S12544

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	01/01/2026	07/01/2025 / Rahul	07/23/2024 / RAHUL	S12552

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12553

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12554

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12555

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12556

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12557

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12558

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	02/25/2026	08/25/2025 / Jagrut	07/23/2024 / RAHUL	S12559

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31615 / SV Mixture, GC/MS Tuning Mixture, CH2Cl2, 1mL,	A0212955	06/30/2027	03/31/2025 / Rahul	08/01/2024 / Rahul	S12577

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31206 / SV Mix, CLP method, Internal Std, 2000ug/mL, CH2Cl2, 1mL	A0212266	11/28/2025	05/28/2025 / Rahul	09/20/2024 / anahy	S12667

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31206 / SV Mix, CLP method, Internal Std, 2000ug/mL, CH2Cl2, 1mL	A0212266	12/16/2025	06/16/2025 / anahy	09/20/2024 / anahy	S12670

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0216785	03/10/2026	09/10/2025 / Jagrut	12/09/2024 / anahy	S12903

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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 #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0216785	03/10/2026	09/10/2025 / Jagrut	12/09/2024 / anahy	S12904

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0219438	09/30/2025	06/04/2025 / Jagrut	12/11/2024 / anahy	S12986

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-110816-01 / Custom 8270 Mix, 4-79, 1000 mg/L, 1 mL, (Maximum Expiration: 180 Days)	531243	12/19/2025	06/19/2025 / Jagrut	01/16/2025 / anahy	S13057

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-010074-07 / 3,3'-Dichlorobenzidine Solution, 1,000 mg/L, 1 ml, (Maximum Expiration: 180 days)	525551	11/05/2025	05/05/2025 / Jagrut	03/10/2025 / anahy	S13078

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	07/01/2025 / Rahul	05/20/2025 / Rahul	S13089

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13090

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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 #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13091

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13092

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13093

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13094

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13095

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0221014	11/30/2025	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13096

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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 #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0218894	02/25/2026	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13118

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0218894	02/25/2026	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13119

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0218894	02/25/2026	08/25/2025 / Jagrut	05/20/2025 / Rahul	S13120

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555869 / Custom Standard, hexachlorocyclopentadiene Std [CS 5328-2]	A0201702	02/25/2026	08/25/2025 / Jagrut	11/13/2023 / Rahul	S13149

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555871 / Custom Standard, 4-nitrophenol Std [CS 5238-4]	A0226283	02/25/2026	08/25/2025 / Jagrut	06/04/2025 / Rahul	S13160

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	03/15/2026	09/15/2025 / rahul	06/02/2025 / anahy	S13175

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555868 / Custom Standard, Benzidine Std [CS 5328-1]	A0226493	02/12/2026	08/12/2025 / Jagrut	06/11/2025 / anahy	S13207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	70434 / Acetophenone, Single compound solution, 1000 PPM	121622	12/19/2025	06/19/2025 / Rahul	06/19/2025 / Rahul	S13208

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91126 / Benzoic acid 2000 ug/mL	060625	12/19/2025	06/19/2025 / Rahul	06/19/2025 / Rahul	S13209

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90495 / 1,1-Biphenyl 2000 ug/mL	042325	12/19/2025	06/19/2025 / Rahul	06/19/2025 / Rahul	S13210

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	34571 / 1,2,4,5-Tetrachlorobenzene 5000 ug/mL	092324	12/19/2025	06/19/2025 / Rahul	06/19/2025 / Rahul	S13211

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0228451	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13239

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0228451	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13240

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0228451	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13241

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0228451	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13242

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0228451	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13243

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at $100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0228451	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13244

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at $85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0228494	02/25/2026	08/25/2025 / Jagrut	08/06/2025 / Rahul	S13269

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CHEMICAL RECEIPT LOG BOOK

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

CPI INTERNATIONAL

5580 Skylane Blvd
Santa Rosa, CA 95403

(707)525-5788
(800)878-7654 Toll Free
(707)545-7901 Fax

Manufacturer's Quality System
Audited & Registered
by TUV USA to ISO 9001:2015

Date Received: _____

Certificate of Analysis

Rev 0

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

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

Received on
02/25/21
by
CG

S9236
to
S9240

*Not a certified value

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

Certified By: Erica Castiglione

Erica Castiglione
Chemist

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

RESTEK® CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Received on 02/06/23 by CG

S11071 to S11075

Catalog No. : 31853 **Lot No.:** A0187043

Description : 1,4-dioxane

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

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

Expiration Date : July 31, 2027 **Storage:** 0°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane	2,019.0 µg/mL	+/- 11.8486	µg/mL	Gravimetric
	CAS # 123-91-1 (Lot SHBN5929)		+/- 43.2570	µg/mL	Unstressed
	Purity 99%		+/- 44.5129	µg/mL	Stressed

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

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

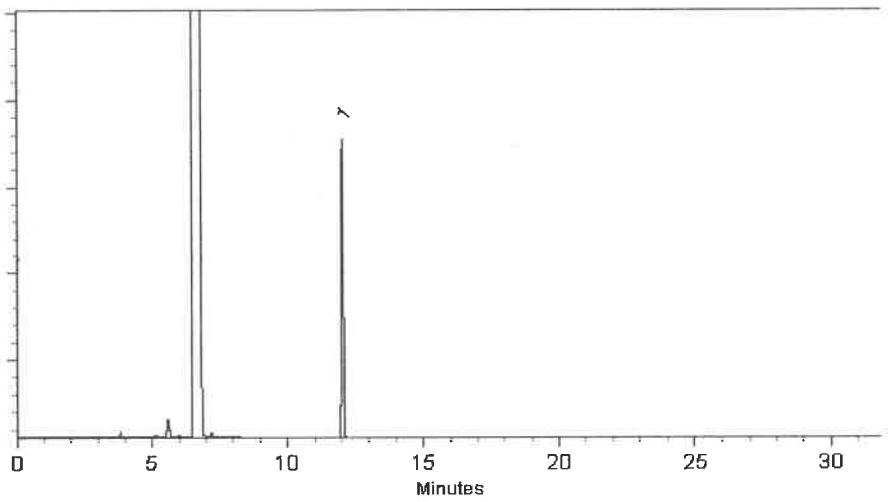
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

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

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



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

Brittany Federinko - Operations Tech I

Date Mixed: 07-Jul-2022 **Balance:** 1128360905

Marlina Cowan – Operations Tech II ARM QC

Date Passed: 12-Jul-2022

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

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9254-03
Batch No.: 24H1462005
Manufactured Date: 2024-05-24
Expiration Date:2027-05-24
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected forwater)	>= 99.4 %	99.8 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.2 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	<= 0.3	0.2
Titrable Base (µeq/g)	<= 0.6	<0.1
Water (H_2O)	<= 0.5 %	0.2 %
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	<1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1

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

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

Rec on 8/20/25

E3965

JCroak

Jamie Croak
Director Quality Operations, Bioscience Production

VWR®

Certificate of Analysis

Sodium Hydroxide (Pellets)

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

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

Pellets

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

Storage: Room Temperature

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

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

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

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

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

Product meets analytical specifications of the grades listed.

E 3657	E 3659
E 3654	E 3660

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

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

CERTIFICATE OF ANALYSIS

PRODUCT :	SODIUM SULFATE CRYSTALS ANHYDROUS		
QUALITY :	ACS (CODE **RMB3375)**	FORMULA :	Na_2SO_4
SPECIFICATION NUMBER:	6399	RELEASE DATE:	MAY/23/2024
LOT NUMBER :	417203		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na_2SO_4)	Min. 99.0%	99.8 %
pH of a 5% solution at 25°C	5.2 - 9.2	6.2
Insoluble matter	Max. 0.01%	0.001 %
Loss on ignition	Max. 0.5%	0.1 %
Chloride (Cl)	Max. 0.001%	<0.001 %
Nitrogen compounds (as N)	Max. 5 ppm	<5 ppm
Phosphate (PO_4)	Max. 0.001%	<0.001 %
Heavy metals (as Pb)	Max. 5 ppm	<5 ppm
Iron (Fe)	Max. 0.001%	<0.001 %
Calcium (Ca)	Max. 0.01%	0.001 %
Magnesium (Mg)	Max. 0.005%	0.001 %
Potassium (K)	Max. 0.008%	0.001 %
Extraction-concentration suitability	Passes test	Passes test
Appearance	Passes test	Passes test
Identification	Passes test	Passes test
Solubility and foreing matter	Passes test	Passes test
Retained on US Standard No. 10 sieve	Max. 1%	0.2 %
Retained on US Standard No. 60 sieve	Min. 94%	96.2 %
Through US Standard No. 60 sieve	Max. 5%	3.5 %
Through US Standard No. 100 sieve	Max. 10%	0.1 %

COMMENTS

QC: PhC Irma Belmares

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

E 3875

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9254-03
Batch No.: 24H1462005
Manufactured Date: 2024-05-24
Expiration Date:2027-05-24
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected forwater)	>= 99.4 %	99.8 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.2 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	<= 0.3	0.2
Titrable Base (µeq/g)	<= 0.6	<0.1
Water (H_2O)	<= 0.5 %	0.2 %
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	<1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1

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

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

E 3932

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

avantor | J.T.Baker

Material No.: 9266-A4
Batch No.: 25A2862010
Manufactured Date: 2024-12-18
Expiration Date:2026-03-19
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	<1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	2
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	>= 99.8 %	99.9 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.3 ppm
Titrable Acid (µeq/g)	<= 0.3	<0.1
Chloride (Cl)	<= 10 ppm	<5 ppm
Water (by KF, coulometric)	<= 0.02 %	<0.01 %

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

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

E3939

J Croak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

avantor™ | J.T.Baker

Material No.: 9266-A4
Batch No.: 25A2862010
Manufactured Date: 2024-12-18
Expiration Date:2026-03-19
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	<1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	2
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	>= 99.8 %	99.9 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.3 ppm
Titrable Acid (µeq/g)	<= 0.3	<0.1
Chloride (Cl)	<= 10 ppm	<5 ppm
Water (by KF, coulometric)	<= 0.02 %	<0.01 %

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

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

E3942

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

avantor™ | J.T.Baker

Material No.: 9266-A4
Batch No.: 25C1262005
Manufactured Date: 2025-01-15
Expiration Date:2026-04-16
Revision No.: 0

Certificate of Analysis

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

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

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

E 3973

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

M615 MB

avantor | J.T.Baker

Material No.: 9673-33
Batch No.: 24I1262013
Manufactured Date: 2024-08-07
Retest Date:2029-08-06
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS - Assay (H_2SO_4)	95.0 - 98.0 %	96.2 %
Appearance	Passes Test	Passes Test
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	<1 ppm
ACS - Substances Reducing Permanganate(as SO2)	<= 2 ppm	<2 ppm
Ammonium (NH_4)	<= 1 ppm	<1 ppm
Chloride (Cl)	<= 0.1 ppm	<0.1 ppm
Nitrate (NO_3)	<= 0.2 ppm	0.1 ppm
Phosphate (PO_4)	<= 0.5 ppm	<0.1 ppm
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	<5.0 ppb
Arsenic & Antimony (as As)	<= 4.0 ppb	<2.0 ppb
Trace Impurities - Boron (B)	<= 10.0 ppb	<5.0 ppb
Trace Impurities - Cadmium (Cd)	<= 2.0 ppb	<1.0 ppb
Trace Impurities - Chromium (Cr)	<= 6.0 ppb	<1.0 ppb
Trace Impurities - Cobalt (Co)	<= 0.5 ppb	<0.3 ppb
Trace Impurities - Copper (Cu)	<= 1.0 ppb	<1.0 ppb
Trace Impurities - Gold (Au)	<= 10.0 ppb	<5.0 ppb
Heavy Metals (as Pb)	<= 500.0 ppb	<100.0 ppb
Trace Impurities - Iron (Fe)	<= 50.0 ppb	<1.0 ppb
Trace Impurities - Lead (Pb)	<= 0.5 ppb	<0.5 ppb
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	<1.0 ppb
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	<1.0 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	<10.0 ppb
Trace Impurities - Selenium (Se)	<= 50.0 ppb	7.2 ppb
Trace Impurities - Silicon (Si)	<= 100.0 ppb	12.8 ppb
Trace Impurities - Silver (Ag)	<= 1.0 ppb	<1.0 ppb

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

avantor™ | J.T.Baker

Material No.: 9673-33
Batch No.: 24I1262013

Test	Specification	Result
Trace Impurities - Sodium (Na)	<= 500.0 ppb	<5.0 ppb
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	<1.0 ppb
Trace Impurities - Tin (Sn)	<= 5.0 ppb	1.1 ppb
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	<1.0 ppb

For Laboratory,Research,or Manufacturing Use

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

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

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Certificate of Analysis

gravimetric

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

ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

S11484 ↓ S11493 Y.P. 08/10/23

Catalog No. : 555870 **Lot No.:** A0200549

Description : Custom 2,4-Dinitrophenol Standard

Custom 2,4-Dinitrophenol Standard 25,000µg/mL, Methanol, 1mL/ampul

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

Expiration Date : August 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	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	25,008.0 µg/mL	+/- 777.3323

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

Tom Suckar - Mix Technician **Date Mixed:** 02-Aug-2023 **Balance:** 1128342314

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

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

Handling Notes:

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

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Date Received:_____

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Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110094-02	506889	≤ -10 °C	Methylene Chloride	7/25/2028	CLP Base/Neutral Surrogate Solution, 5,000 mg/L, 1 ml

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,2-dichlorobenzene-d_4	2199-69-1	99.7	247.29.3P	5035 ± 28.02
2-fluorobiphenyl	321-60-8	99.69	8.286.1.1P	4999 ± 103.66
nitrobenzene-d5	4165-60-0	99.67	7.9.3P	4988 ± 27.32
p-terphenyl-d14	1718-51-0	99.3	9.120.8P	5005 ± 27.85

511494 to 511498 } Y.P. 08/11/2023

*Not a certified value

Certified By: _____

Clint Tipton
Chemist

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

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Certificate of Analysis

gravimetric

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ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

Description : Custom Pentachlorophenol Standard

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

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

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

Ship: Ambient

511649 ↓ 511658 Y.P. 11/13/23

CERTIFIED VALUES

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

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

Josh McCloskey - Operations Technician I

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

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

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

Handling Notes:

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

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Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31853 **Lot No.:** A0200655

S11795 ↓ S11808 RC 11/30/23

Description : 1,4-dioxane

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

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

Expiration Date : August 31, 2028 **Storage:** 0°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	1,4-Dioxane	123-91-1	SHBQ1693	99%	2,007.0 µg/mL	+/- 24.9775

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

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

Quality Confirmation Test

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

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

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

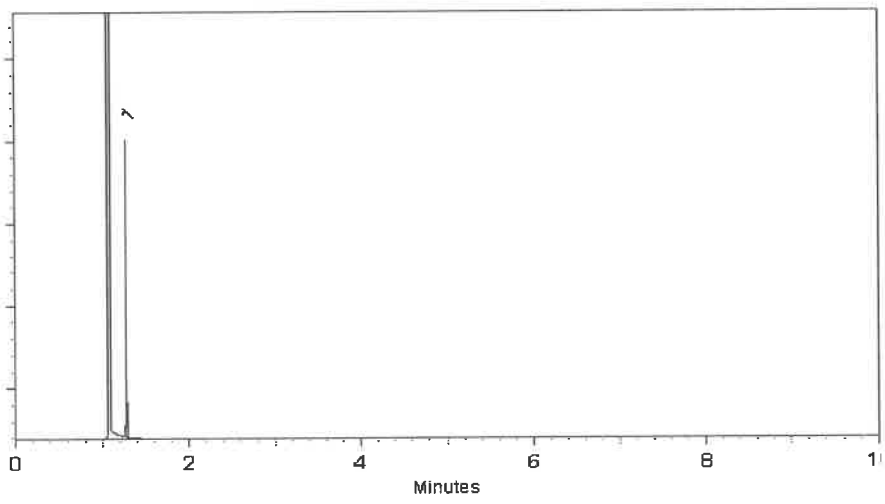
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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

Penelope Riglin - Operations Tech I

Date Mixed: 06-Aug-2023 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 08-Aug-2023

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

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

Handling Notes:

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

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Date Received:_____

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Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-020223-01	454157	≤ -10 °C	P/T Methanol	6/10/2026	1,4-Dioxane Solution, 2000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,4-dioxane	123-91-1	100	223.1.3P	1997 ± 57.08

S12112 ↓ S12116 } RC/ 03/08/24

*Not a certified value

Certified By: Melissa Workoff

Melissa Workoff
Chemist

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

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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. : 31087 **Lot No.:** A0206206

Description : Acid Surrogate Mix (4/89 SOW)

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

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

Expiration Date : January 31, 2032 **Storage:** 10°C or colder

Ship: Ambient

S12187 ↓ S12206 } RC/ 03/18/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Fluorophenol	367-12-4	STBK1705	99%	10,005.3 µg/mL	+/- 302.5390
2	Phenol-d6	13127-88-3	PR-33287A	99%	10,005.5 µg/mL	+/- 302.5475
3	2,4,6-Tribromophenol	118-79-6	RP230831RSR	99%	10,006.6 µg/mL	+/- 302.5783

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

Solvent: Methanol
CAS # 67-56-1
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:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

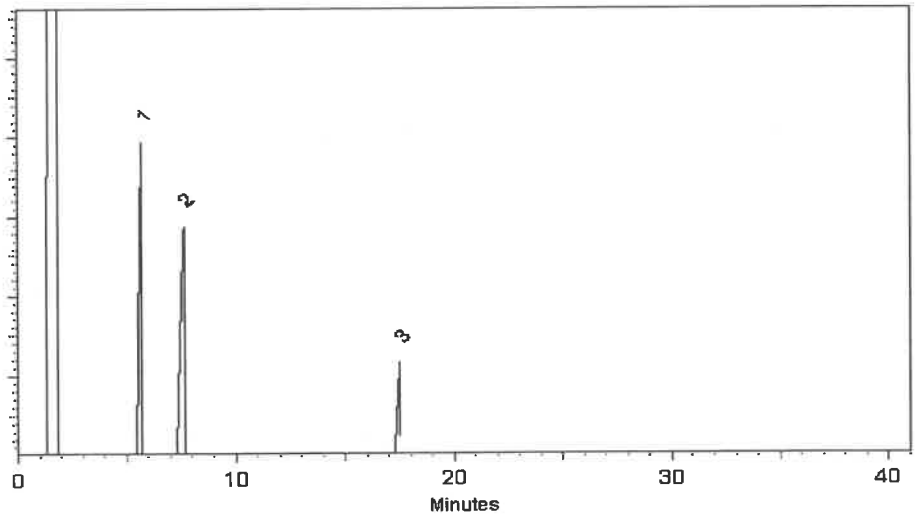
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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

Penelope Riglin - Operations Tech I

Date Mixed: 04-Jan-2024 **Balance Serial #** 1128360905

Christie Mills - Operations Lead Tech - ARM QC

Date Passed: 08-Jan-2024

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

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Certificate of Analysis

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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. : 31087 **Lot No.:** A0206206

Description : Acid Surrogate Mix (4/89 SOW)

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

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

Expiration Date : January 31, 2032 **Storage:** 10°C or colder

Ship: Ambient

S12187 ↓ S12206 } RC/ 03/18/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Fluorophenol	367-12-4	STBK1705	99%	10,005.3 µg/mL	+/- 302.5390
2	Phenol-d6	13127-88-3	PR-33287A	99%	10,005.5 µg/mL	+/- 302.5475
3	2,4,6-Tribromophenol	118-79-6	RP230831RSR	99%	10,006.6 µg/mL	+/- 302.5783

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

Solvent: Methanol
CAS # 67-56-1
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:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

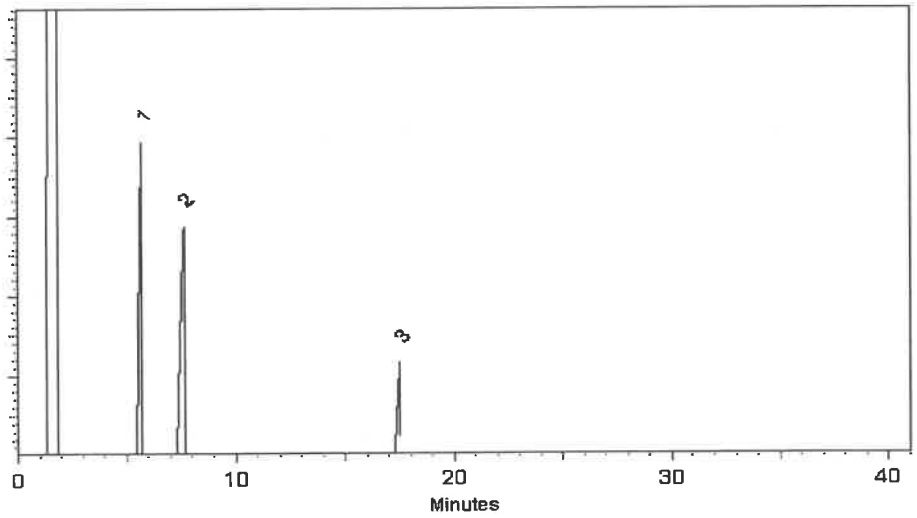
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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

Penelope Riglin - Operations Tech I

Date Mixed: 04-Jan-2024 **Balance Serial #** 1128360905

Christie Mills - Operations Lead Tech - ARM QC

Date Passed: 08-Jan-2024

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

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ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31087 **Lot No.:** A0206206

Description : Acid Surrogate Mix (4/89 SOW)

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

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

Expiration Date : January 31, 2032 **Storage:** 10°C or colder

Ship: Ambient

S12187 ↓ S12206 } RC/ 03/18/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Fluorophenol	367-12-4	STBK1705	99%	10,005.3 µg/mL	+/- 302.5390
2	Phenol-d6	13127-88-3	PR-33287A	99%	10,005.5 µg/mL	+/- 302.5475
3	2,4,6-Tribromophenol	118-79-6	RP230831RSR	99%	10,006.6 µg/mL	+/- 302.5783

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

Solvent: Methanol
CAS # 67-56-1
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:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

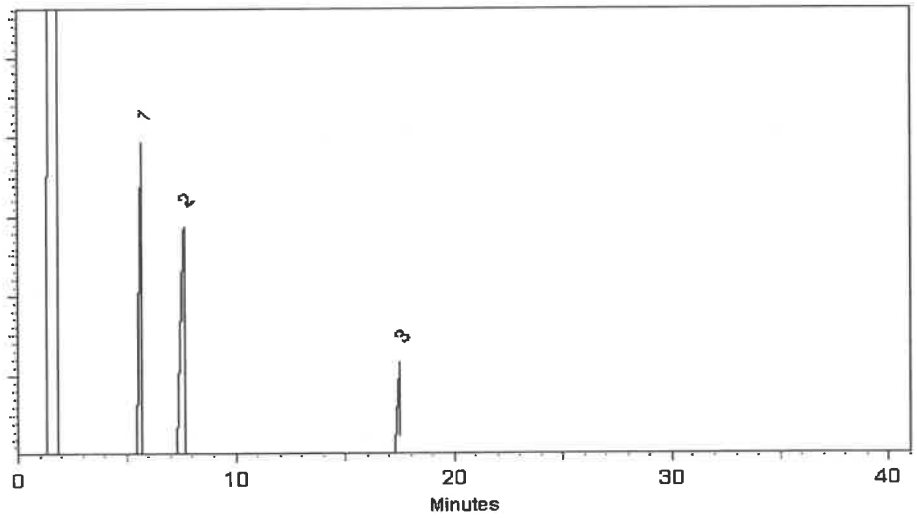
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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

Penelope Riglin - Operations Tech I

Date Mixed: 04-Jan-2024 **Balance Serial #** 1128360905

Christie Mills - Operations Lead Tech - ARM QC

Date Passed: 08-Jan-2024

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

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

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ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31087 **Lot No.:** A0206206

Description : Acid Surrogate Mix (4/89 SOW)

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

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

Expiration Date : January 31, 2032 **Storage:** 10°C or colder

Ship: Ambient

S12187 ↓ S12206 } RC/ 03/18/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Fluorophenol	367-12-4	STBK1705	99%	10,005.3 µg/mL	+/- 302.5390
2	Phenol-d6	13127-88-3	PR-33287A	99%	10,005.5 µg/mL	+/- 302.5475
3	2,4,6-Tribromophenol	118-79-6	RP230831RSR	99%	10,006.6 µg/mL	+/- 302.5783

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

Solvent: Methanol
CAS # 67-56-1
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:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

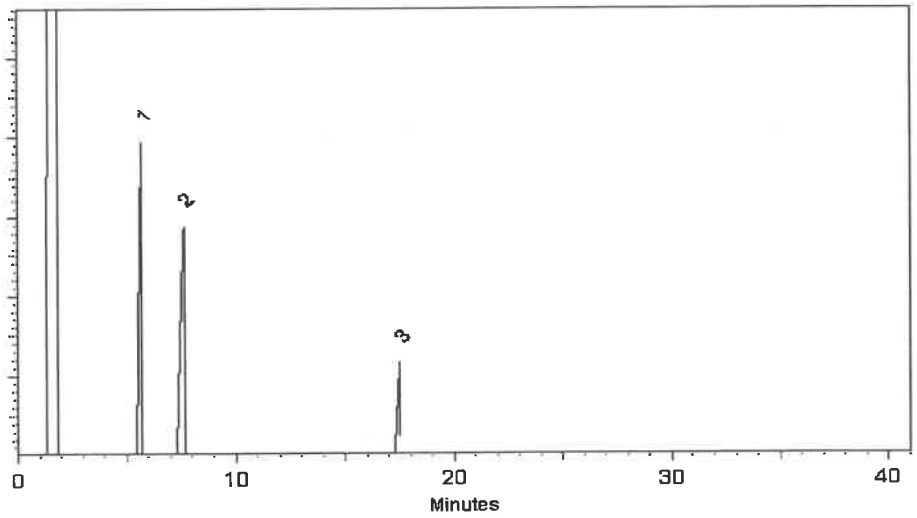
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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Penelope Riglin - Operations Tech I

Date Mixed: 04-Jan-2024 **Balance Serial #** 1128360905

Christie Mills - Operations Lead Tech - ARM QC

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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. : 31086 **Lot No.:** A0206381

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

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

S12207 ↓ S12221 RC 03/18/24

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Nitrobenzene-d5	4165-60-0	I-25158	99%	5,029.3 µg/mL	+/- 226.5204
2	2-Fluorobiphenyl	321-60-8	00021384	99%	5,030.9 µg/mL	+/- 226.5936
3	p-Terphenyl-d14	1718-51-0	PR-32599	99%	5,026.4 µg/mL	+/- 226.3909

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

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

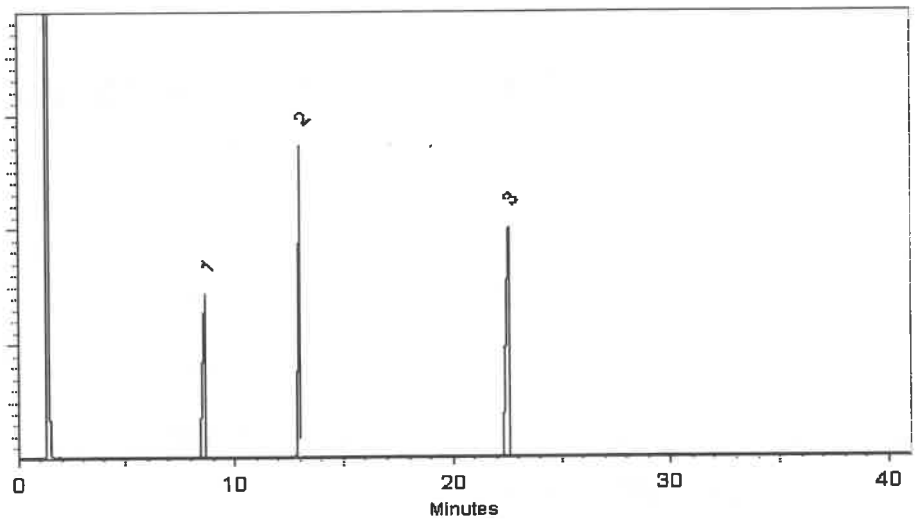
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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Jess Hoy - Operations Tech I

Date Mixed: 09-Jan-2024 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 11-Jan-2024

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

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Certificate of Analysis

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Catalog No. : 31086 **Lot No.:** A0206381

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

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

S12207 ↓ S12221 RC 03/18/24

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Nitrobenzene-d5	4165-60-0	I-25158	99%	5,029.3 µg/mL	+/- 226.5204
2	2-Fluorobiphenyl	321-60-8	00021384	99%	5,030.9 µg/mL	+/- 226.5936
3	p-Terphenyl-d14	1718-51-0	PR-32599	99%	5,026.4 µg/mL	+/- 226.3909

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

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
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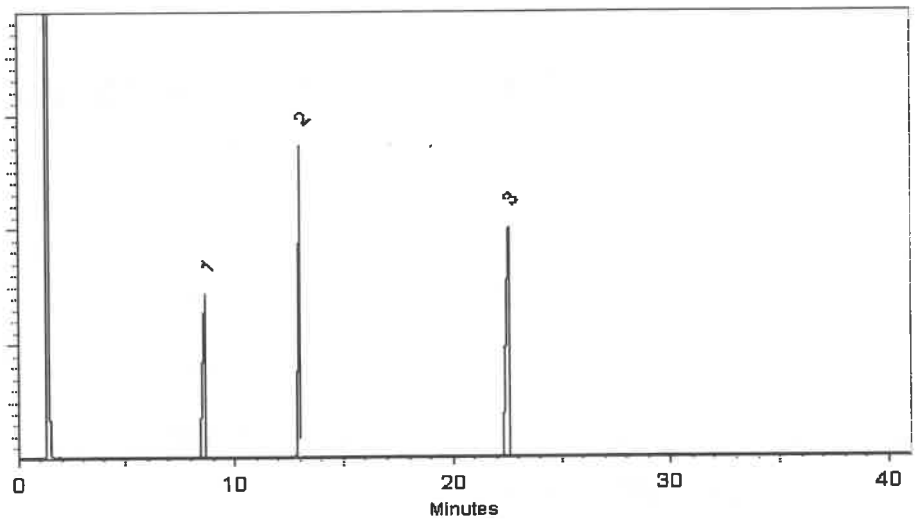
Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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Jess Hoy - Operations Tech I

Date Mixed: 09-Jan-2024 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 11-Jan-2024

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

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ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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Catalog No. : 31086 **Lot No.:** A0206381

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

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

S12207 ↓ S12221 RC 03/18/24

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Nitrobenzene-d5	4165-60-0	I-25158	99%	5,029.3 µg/mL	+/- 226.5204
2	2-Fluorobiphenyl	321-60-8	00021384	99%	5,030.9 µg/mL	+/- 226.5936
3	p-Terphenyl-d14	1718-51-0	PR-32599	99%	5,026.4 µg/mL	+/- 226.3909

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

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
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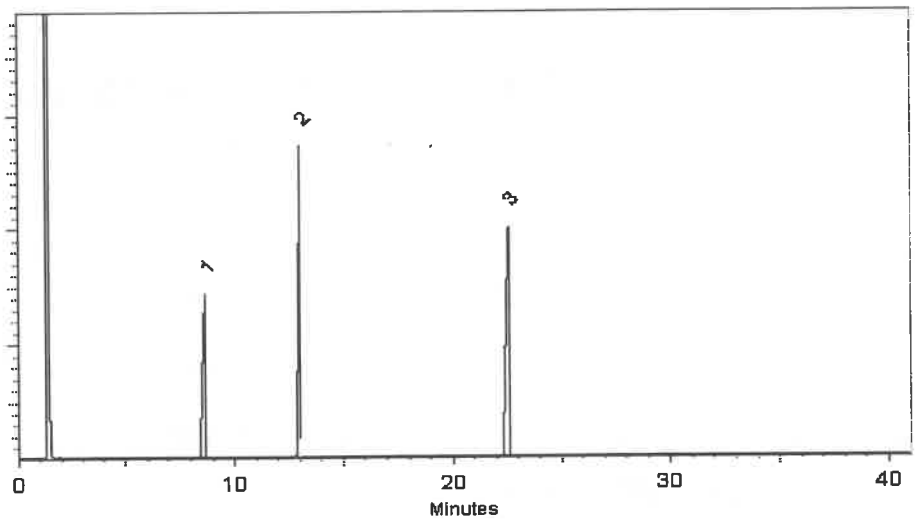
Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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Jess Hoy - Operations Tech I

Date Mixed: 09-Jan-2024 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 11-Jan-2024

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

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Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110381-01	520963	≤ -10 °C	Methylene Chloride	10/10/2028	Method 8270 Calibration Solution, 76-1, 500 & 1,000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
acenaphthene	83-32-9	99.9	13.1.5P	1010 ± 9.89
acenaphthylene	208-96-8	97.6	14.290.1P	1014 ± 9.93
aniline	62-53-3	99.97	64.1.4P	1001 ± 9.8
anthracene	120-12-7	99.5	15.7.1P	999.6 ± 9.79
azobenzene	103-33-3	98.1	252.7.2P	999.1 ± 9.8
benzo[a]anthracene	56-55-3	100	16.7.3P	1007 ± 9.86
benzo[b]fluoranthene	205-99-2	99.8	17.421.3P	1011 ± 14.11
benzo[k]fluoranthene	207-08-9	98.9	18.421.4P	1001 ± 10.96
benzo[ghi]perylene	191-24-2	93	19.286.4P	999.6 ± 13.95
benzo[a]pyrene	50-32-8	97	20.286.2P	999.9 ± 22.24
benzyl alcohol	100-51-6	99.9	65.18.1P	1001 ± 9.82
bis(2-chloroethoxy)methane	111-91-1	99.1	31.3.15P	1000 ± 14.69
bis(2-chloroethyl)ether	111-44-4	99.8	32.7.1P	1003 ± 13.89
bis(2-chloro-1-methylethyl) ether	108-60-1	99.5	34.3.15P	999.4 ± 14.68
bis(2-ethylhexyl)adipate	103-23-1	99.5	874.7.1P	999.5 ± 9.8
bis(2-ethylhexyl)phthalate	117-81-7	99.4	33.29.1P	998.8 ± 17.03
4-bromophenyl phenyl ether	101-55-3	99.4	35.7.1.1P	1000 ± 13.85
butyl benzyl phthalate	85-68-7	98.4	36.1.6P	984.7 ± 16.79
carbazole	86-74-8	99.4	239.7.2P	1000 ± 9.8

S12270 ↓ S12274 } RC/ 05/24/24

*Not a certified value

Kerry E Kane

Certified By: _____

Kerry Kane
Chemist

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

Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 520963 **Expiration Date:** 10/10/2028

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
4-chloroaniline	106-47-8	100	66.7.1P	1000 ± 9.79
4-chlorophenylphenyl ether	7005-72-3	98	37.158.2P	1001 ± 17.07
4-chloro-3-methylphenol	59-50-7	99	102.1.2P	1006 ± 17.16
2-chloronaphthalene	91-58-7	99.9	42.7.6P	1000 ± 9.79
2-chlorophenol	95-57-8	99.8	103.7.1P	1007 ± 13.96
chrysene	218-01-9	96	21.286.2P	998.4 ± 12.85
dibenz[a,h]anthracene	53-70-3	99.44	22.286.3P	1000 ± 9.74
dibenzofuran	132-64-9	100	67.7.2.1P	1002 ± 9.77
di-n-butyl phthalate	84-74-2	99.84	40.286.1P	1007 ± 24.48
1,2-dichlorobenzene	95-50-1	99.8	43.7.1P	1000 ± 9.79
1,3-dichlorobenzene	541-73-1	99.5	44.1.3P	999.4 ± 9.79
1,4-dichlorobenzene	106-46-7	99.9	45.29.2P	1000 ± 9.79
2,4-dichlorophenol	120-83-2	99.6	104.7.1.1P	1005 ± 13.93
diethyl phthalate	84-66-2	99.8	38.7.1P	1011 ± 14
2,4-dimethylphenol	105-67-9	99.6	105.7.1.1P	1009 ± 13.98
dimethyl phthalate	131-11-3	99.9	39.9.2P	996.5 ± 13.8
1,2-dinitrobenzene	528-29-0	99.86	86.7.3.1P	999.5 ± 9.75
1,3-dinitrobenzene	99-65-0	100	313.7.2P	998 ± 9.79
1,4-dinitrobenzene	100-25-4	100	907.7.1P	999.5 ± 9.8
2,4-dinitrophenol	51-28-5	99.9	106.1.6DP	1002 ± 13.89
2,4-dinitrotoluene	121-14-2	100	87.7.3P	999.8 ± 13.85
2,6-dinitrotoluene	606-20-2	99.4	88.7.2.1P	999.6 ± 13.85
di-n-octyl phthalate	117-84-0	99.1	41.7.5P	991.6 ± 13.74
diphenylamine	122-39-4	100	78.1.6P	998 ± 13.79
2,3,5,6-tetrachlorophenol	935-95-5	97	1112.286.1P	1004 ± 14.02
fluoranthene	206-44-0	98.6	23.7.4P	999.6 ± 9.79
fluorene	86-73-7	98.4	24.7.1P	999.7 ± 9.79

*Not a certified value

Certified By: Kerry E Kane

Kerry Kane
Chemist

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

Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 520963 **Expiration Date:** 10/10/2028

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
hexachlorobenzene	118-74-1	99	46.158.4P	999.9 ± 13.96
hexachlorobutadiene	87-68-3	97.4	47.1.4P	1000 ± 9.79
hexachlorocyclopentadiene	77-47-4	99.2	48.2.2P	1001 ± 9.8
hexachloroethane	67-72-1	99.9	49.1.4P	1003 ± 9.82
indeno[1,2,3-cd]pyrene	193-39-5	98	25.286.4P	999.4 ± 22.23
isophorone	78-59-1	98.9	90.1.4P	999.9 ± 13.85
2-methyl-4,6-dinitrophenol	534-52-1	99.6	107.421.2DP	991 ± 24.09
1-methylnaphthalene	90-12-0	97.1	249.7.5P	999.2 ± 13.95
2-methylnaphthalene	91-57-6	97.4	68.7.2P	1006 ± 22.38
2-methylphenol	95-48-7	99.6	114.7.3P	1001 ± 13.87
3-methylphenol	108-39-4	99.1	115.7.4P	499.7 ± 6.92
4-methylphenol	106-44-5	99.5	116.7.1P	501.2 ± 6.94
naphthalene	91-20-3	99.8	26.9.1P	1018 ± 9.97
2-nitroaniline	88-74-4	99.7	69.29.1P	999.6 ± 9.79
3-nitroaniline	99-09-2	100	70.7.3P	1000 ± 9.74
4-nitroaniline	100-01-6	99.7	71.29.1P	1001 ± 9.8
nitrobenzene	98-95-3	100	94.7.1P	1000 ± 13.85
2-nitrophenol	88-75-5	99.1	108.29.1P	996.5 ± 13.81
4-nitrophenol	100-02-7	100	109.7.1P	1000 ± 13.82
N-nitrosodimethylamine	62-75-9	99.5	57.3.19P	998.5 ± 14.67
N-nitrosodi-n-propylamine	621-64-7	99.8	59.286.1P	996.8 ± 17
pentachlorophenol	87-86-5	99	110.1.7P	1004 ± 13.92
phenanthrene	85-01-8	99.7	27.1.5P	999 ± 12.87
phenol	108-95-2	100	112.7.1P	998.5 ± 13.8
pyrene	129-00-0	99.2	28.9.2P	998.9 ± 9.78
pyridine	110-86-1	100	101.24.1P	999 ± 9.73
2,3,4,6-Tetrachlorophenol	58-90-2	91.8	120.421.1P	996.5 ± 13.92

*Not a certified value

Certified By: Kerry E Kane

Kerry Kane
Chemist

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

Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 520963 **Expiration Date:** 10/10/2028

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,2,4-trichlorobenzene	120-82-1	99.6	54.29.1P	999.6 ± 9.79
2,4,5-trichlorophenol	95-95-4	96.5	121.7.1.1P	999.5 ± 13.85
2,4,6-trichlorophenol	88-06-2	99.6	113.7.1P	996 ± 13.8

*Not a certified value

Certified By: Kerry E Kane

Kerry Kane
Chemist

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by TUV USA to ISO 9001:2015

Date Received: _____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-010442-07	495833	≤ -10 °C	Methylene Chloride	1/16/2028	Benzaldehyde Solution, 1000 mg/L, 1.3 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
benzaldehyde	100-52-7	98.3	442.421.1P	996.8 ± 11.49

S12275 ↓ S12279 } RC/ 05/24/24

*Not a certified value

Certified By: S. Hunter

Scott Hunter
Chemist

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

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Date Received: _____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-010442-07	495833	≤ -10 °C	Methylene Chloride	1/16/2028	Benzaldehyde Solution, 1000 mg/L, 1.3 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
benzaldehyde	100-52-7	98.3	442.421.1P	996.8 ± 11.49

S12275 ↓ S12279 } RC/ 05/24/24

*Not a certified value

Certified By: S. Hunter

Scott Hunter
Chemist

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Bellefonte, PA 16823-8812
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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

gravimetric

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 555223 **Lot No.:** A0214021

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

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

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	S240326RSR	99%	1,004.0 µg/mL	+/- 23.0487
2	Atrazine	1912-24-9	5FYWL	99%	1,005.0 µg/mL	+/- 23.0717
3	Benzidine	92-87-5	S240430RSR	99%	1,006.0 µg/mL	+/- 23.0947
4	epsilon-Caprolactam	105-60-2	Y16H012	99%	1,000.0 µg/mL	+/- 22.9569

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

S12449 ↓ S12508 } RC 7/24/24

Rebecca Gingerich - Operations Tech II **Date Mixed:** 18-Jul-2024 **Balance:** 1128353505

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

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

Handling Notes:

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

Certificate of Analysis

gravimetric

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

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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. : 555223 **Lot No.:** A0214021

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

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

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	S240326RSR	99%	1,004.0 µg/mL	+/- 23.0487
2	Atrazine	1912-24-9	5FYWL	99%	1,005.0 µg/mL	+/- 23.0717
3	Benzidine	92-87-5	S240430RSR	99%	1,006.0 µg/mL	+/- 23.0947
4	epsilon-Caprolactam	105-60-2	Y16H012	99%	1,000.0 µg/mL	+/- 22.9569

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

S12449 ↓ S12508 } RC 7/24/24

Rebecca Gingerich - Operations Tech II **Date Mixed:** 18-Jul-2024 **Balance:** 1128353505

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

General Certified Reference Material Notes

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Catalog No. : 555223 **Lot No.:** A0214021

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

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

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	S240326RSR	99%	1,004.0 µg/mL	+/- 23.0487
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Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

S12449 ↓ S12508 } RC 7/24/24

Rebecca Gingerich - Operations Tech II **Date Mixed:** 18-Jul-2024 **Balance:** 1128353505

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

General Certified Reference Material Notes

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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. : 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 ↓ S12568 } RC/ 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.
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Manufacturing Notes:

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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. : 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 ↓ S12568 } RC/ 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:

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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
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5	Biphenyl	92-52-4	MKCS5928	99%	1,008.0 µg/mL	+/- 29.630084

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

S12509 ↓ S12568 } RC/ 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

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

S12509 ↓ S12568 } RC/ 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

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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 ↓ S12568 } RC/ 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:

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

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

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

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

Handling Notes:

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

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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 ↓ S12568 } RC/ 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:

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Purity Notes:

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- Purity values are rounded to the nearest whole number.

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  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:

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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. : 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 ↓ S12568 } RC/ 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

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- 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:

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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. : 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 ↓ S12568 } RC/ 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:

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- 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.

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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 ↓ S12568 } RC/ 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:

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- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

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  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:

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ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31615 **Lot No.:** A0212955

Description : GC/MS Tuning Mixture

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

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

Expiration Date : June 30, 2027 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,004.5 µg/mL	+/- 44.8902
2	DFTPP (Decafluorotriphenylphosphine)	5074-71-5	Q117-147	99%	1,004.5 µg/mL	+/- 44.8902
3	Benzidine	92-87-5	S240430RSR	99%	1,006.0 µg/mL	+/- 44.9572
4	4,4'-DDT	50-29-3	S240530RSR	97%	1,000.1 µg/mL	+/- 44.6922

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

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

S12577 ↓ S12579 } RC 8/2/24

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

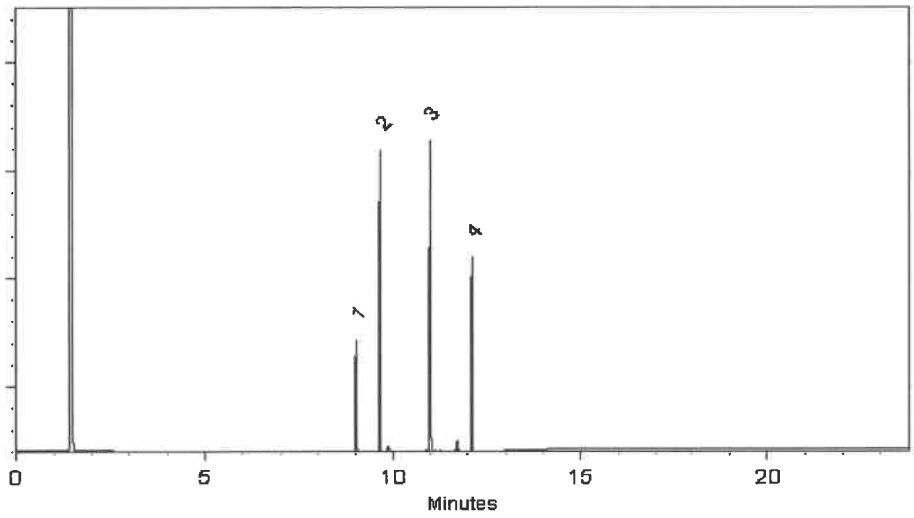
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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

Ethan Winiarski - Operations Tech I

Date Mixed: 19-Jun-2024 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 26-Jun-2024

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

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

Description : SV Internal Standard Mix 2mg/ml

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

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

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

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

CERTIFIED VALUES

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

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

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

S12645 ↓ S12674 AC 10/1/24

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CERTIFIED REFERENCE MATERIAL

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ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

Description : SV Internal Standard Mix 2mg/ml

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

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

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

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

CERTIFIED VALUES

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

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

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

S12645 ↓ S12674 AC 10/1/24

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Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31850 **Lot No.:** A0219438

Description : 8270 MegaMix®

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

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

Expiration Date : September 30, 2025 **Storage:** 0°C or colder

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

S12963 ↓ S12992 AC 12/17/24

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%	1,008.3 µg/mL	+/- 36.6849
2	N-Nitrosodimethylamine	62-75-9	S240313RSR	99%	1,008.6 µg/mL	+/- 36.6985
3	Phenol	108-95-2	MKCK1120	99%	1,003.5 µg/mL	+/- 36.5120
4	Aniline	62-53-3	X22F726	99%	1,002.9 µg/mL	+/- 36.4893
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,003.0 µg/mL	+/- 36.4938
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.6 µg/mL	+/- 36.5894
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.1 µg/mL	+/- 36.5348
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,002.1 µg/mL	+/- 36.4620
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,003.5 µg/mL	+/- 36.5120
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,005.3 µg/mL	+/- 36.5757
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,008.4 µg/mL	+/- 36.6894
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,004.6 µg/mL	+/- 36.5530
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2697
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	503.8 µg/mL	+/- 18.3288
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,006.5 µg/mL	+/- 36.6212
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.5 µg/mL	+/- 36.5484
17	Nitrobenzene	98-95-3	10224044	99%	1,002.5 µg/mL	+/- 36.4757

18	Isophorone	78-59-1	MKCR3249	99%	1,003.4	µg/mL	+/- 36.5075
19	2-Nitrophenol	88-75-5	RP230710	99%	1,002.5	µg/mL	+/- 36.4757
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,006.5	µg/mL	+/- 36.6212
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,006.6	µg/mL	+/- 36.6257
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,001.5	µg/mL	+/- 36.4393
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,006.4	µg/mL	+/- 36.6166
24	Naphthalene	91-20-3	STBL1057	99%	1,002.1	µg/mL	+/- 36.4620
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,004.4	µg/mL	+/- 36.5439
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,002.5	µg/mL	+/- 36.4771
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.5	µg/mL	+/- 36.5484
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,000.0	µg/mL	+/- 36.3847
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063I14L	98%	1,001.3	µg/mL	+/- 36.4325
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,006.4	µg/mL	+/- 36.6166
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.6	µg/mL	+/- 36.5505
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.3	µg/mL	+/- 36.5393
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.4	µg/mL	+/- 36.5439
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,002.8	µg/mL	+/- 36.4847
36	Acenaphthylene	208-96-8	RP241029RSR	98%	1,000.0	µg/mL	+/- 36.3835
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,006.3	µg/mL	+/- 36.6121
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,008.9	µg/mL	+/- 36.7076
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.6	µg/mL	+/- 36.6257
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,002.5	µg/mL	+/- 36.4757
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5530
43	2,4-Dinitrophenol	51-28-5	D240927RSR	----%	1,005.6	µg/mL	+/- 36.5894
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,003.5	µg/mL	+/- 36.5120
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,008.3	µg/mL	+/- 36.6849
46	4-Nitrophenol	100-02-7	20241029-2-AN	99%	1,004.8	µg/mL	+/- 36.5575
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,005.8	µg/mL	+/- 36.5939
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP231219RSR	99%	1,006.4	µg/mL	+/- 36.6166
49	Fluorene	86-73-7	10246250	98%	1,000.7	µg/mL	+/- 36.4102
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCT7248	99%	1,004.9	µg/mL	+/- 36.5621
51	Diethylphthalate	84-66-2	BCCJ6241	99%	1,003.9	µg/mL	+/- 36.5257
52	4-Nitroaniline	100-01-6	RP230111	99%	1,006.6	µg/mL	+/- 36.6257
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,001.3	µg/mL	+/- 36.4302

54	Diphenylamine	122-39-4	MKCT1512	99%	1,003.0	µg/mL	+/- 36.4938
55	Azobenzene	103-33-3	BCCK0887	99%	1,002.4	µg/mL	+/- 36.4711
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,008.8	µg/mL	+/- 36.7031
57	Hexachlorobenzene	118-74-1	15458400	99%	1,005.1	µg/mL	+/- 36.5712
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.9	µg/mL	+/- 36.5984
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.9	µg/mL	+/- 36.5621
60	Anthracene	120-12-7	101492T18R	99%	1,005.1	µg/mL	+/- 36.5712
61	Carbazole	86-74-8	15276700	99%	1,005.4	µg/mL	+/- 36.5803
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.3	µg/mL	+/- 36.6121
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.5	µg/mL	+/- 36.5120
64	Pyrene	129-00-0	BCCK2592	99%	1,002.0	µg/mL	+/- 36.4575
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,007.5	µg/mL	+/- 36.6576
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,005.9	µg/mL	+/- 36.5984
67	Benz(a)anthracene	56-55-3	I70012022BAA	99%	1,005.5	µg/mL	+/- 36.5848
68	Chrysene	218-01-9	RP241007RSR	99%	1,005.3	µg/mL	+/- 36.5757
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,007.5	µg/mL	+/- 36.6576
70	Di-n-octyl phthalate	117-84-0	15566400	99%	1,002.3	µg/mL	+/- 36.4666
71	Benzo(b)fluoranthene	205-99-2	052013B	99%	1,004.1	µg/mL	+/- 36.5348
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,002.8	µg/mL	+/- 36.4847
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,006.2	µg/mL	+/- 36.6108
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,001.8	µg/mL	+/- 36.4490
75	Dibenz(a,h)anthracene	53-70-3	2-ASA-59-1	99%	1,003.3	µg/mL	+/- 36.5029
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,003.8	µg/mL	+/- 36.5217

* 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.

CPI INTERNATIONAL

5580 Skylane Blvd
Santa Rosa, CA 95403

(707)525-5788
(800)878-7654 Toll Free
(707)545-7901 Fax

Manufacturer's Quality System
Audited & Registered
by TUV USA to ISO 9001:2015

Date Received: _____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110816-01	531243	≤ -10 °C	Methylene Chloride	1/2/2030	Custom 8270 Mix, 4-79, 1000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
atrazine	1912-24-9	99.5	337.7.4P	997 ± 5.81
benzidine	92-87-5	99.9	124.18.6.2P	993.8 ± 5.78
caprolactam	105-60-2	99.9	271.1.6P	999 ± 5.82

513057 ↓ 513061 AC 1/16/25

*Not a certified value

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

Certified By: Melissa Workoff

Melissa Workoff
Chemist

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

CPI INTERNATIONAL

5580 Skylane Blvd
Santa Rosa, CA 95403

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Manufacturer's Quality System
Audited & Registered
by TUV USA to ISO 9001:2015

Date Received:_____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-010074-07	525551	-18°C +/- 4°C	Methylene Chloride	9/3/2029	3,3'-Dichlorobenzidine Solution, 1,000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
3,3'-dichlorobenzidine	91-94-1	97.9	74.421.2P	994.7 ± 30.56

This RM is intended for use as a calibration standard or a quality control standard for chromatography equipment such as GC, GC/MS, HPLC, and HPLC/MS. It may also be used for various USEPA, NIOSH and ASTM methods.

Recommended storage container for ampuled products after opening is a 12 mm x 32 mm amber vial with screw cap Teflon lined silicon septum. The modeled % change per day can be calculated using the following:

$$\% \text{ Change} = 116192x^{-2.578} + 40.383e^{-0.03y}$$

where x = boiling point of the most volatile analyte in the mix (in degrees K)
y = boiling point of the solvent (in degrees K)

This model assumes the container is stored at -10 °C and is unopened during storage. The user should determine what the acceptable error for their process is and calculate the maximum number of days the opened ampule should be stored. The minimum sample size recommended for use is 1µL.

S13078 ↓ S13087 } AC 3/10/25

Manufactured by

Raevyn Steele
Chemist

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

*Not a certified valu

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

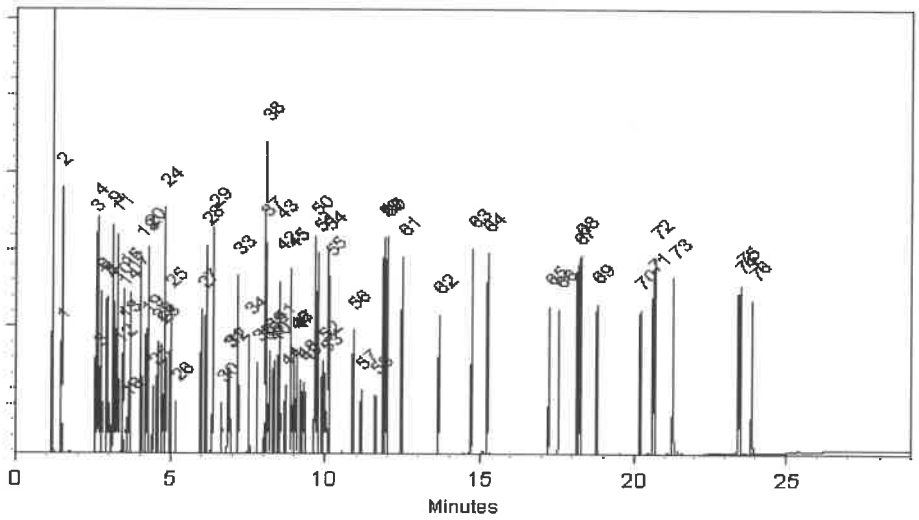
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

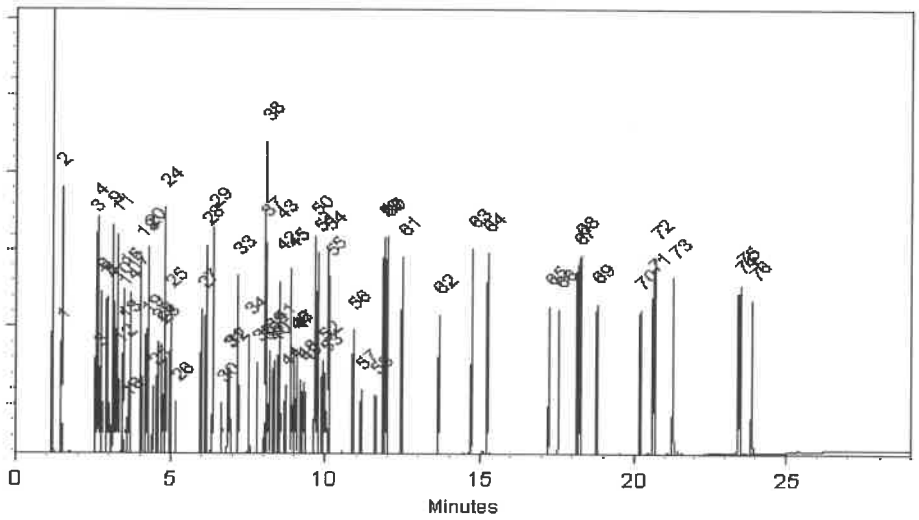
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

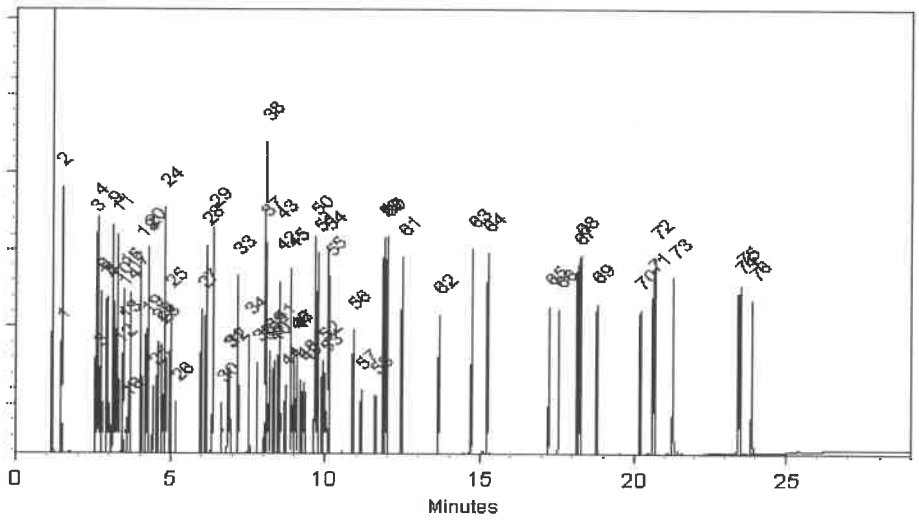
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

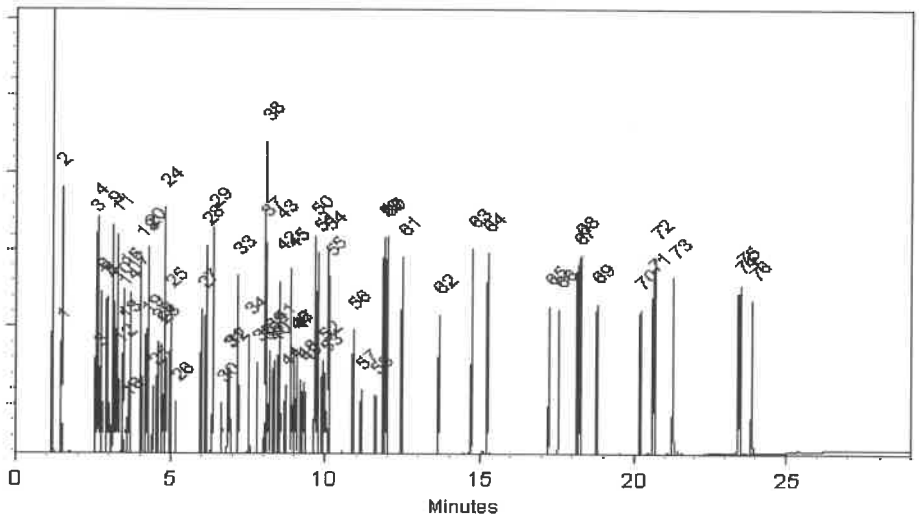
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

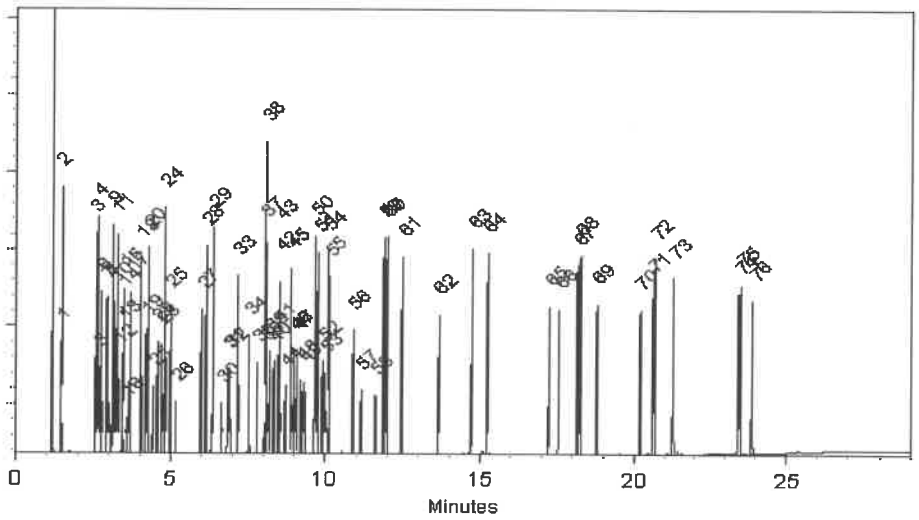
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

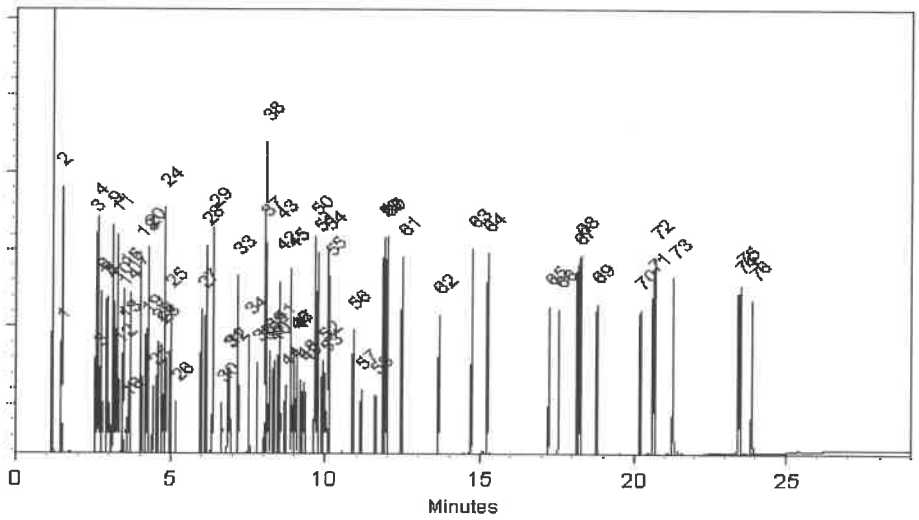
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01
ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

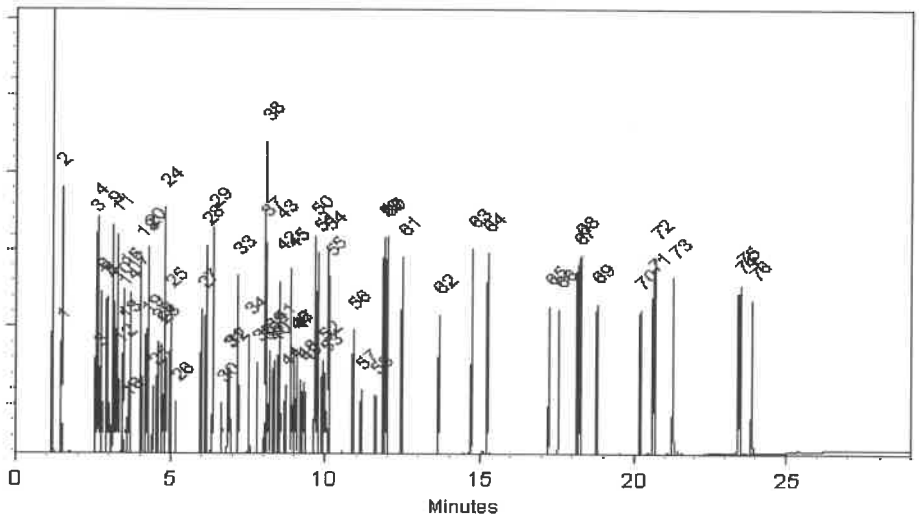
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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. : 31850 **Lot No.:** A0221014

S13088 ↓ S13117 RC 5/20/25.

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2025 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBR4811	99%	1,005.2 µg/mL	+/- 36.5730
2	N-Nitrosodimethylamine	62-75-9	S241226RSR	99%	1,005.5 µg/mL	+/- 36.5848
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5780
4	Aniline	62-53-3	X22F726	99%	1,005.4 µg/mL	+/- 36.5816
5	Bis(2-chloroethyl)ether	111-44-4	002891T24M	99%	1,004.7 µg/mL	+/- 36.5562
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,005.3 µg/mL	+/- 36.5766
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,004.6 µg/mL	+/- 36.5530
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,006.3 µg/mL	+/- 36.6125
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,005.5 µg/mL	+/- 36.5853
10	1,2-Dichlorobenzene	95-50-1	SHBL6287	99%	1,004.6 µg/mL	+/- 36.5507
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,004.8 µg/mL	+/- 36.5575
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,005.4 µg/mL	+/- 36.5803
13	3-Methylphenol (m-cresol)	108-39-4	STBL3873	99%	502.7 µg/mL	+/- 18.2888
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	502.6 µg/mL	+/- 18.2869
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.6 µg/mL	+/- 36.5502
16	Hexachloroethane	67-72-1	DAXRI	99%	1,004.6 µg/mL	+/- 36.5530
17	Nitrobenzene	98-95-3	10224044	99%	1,005.3 µg/mL	+/- 36.5780

18	Isophorone	78-59-1	MKCR3249	99%	1,004.6	µg/mL	+/- 36.5511
19	2-Nitrophenol	88-75-5	RP230710	99%	1,005.7	µg/mL	+/- 36.5916
20	2,4-Dimethylphenol	105-67-9	DIRAF	99%	1,004.9	µg/mL	+/- 36.5612
21	Bis(2-chloroethoxy)methane	111-91-1	15705100	99%	1,004.3	µg/mL	+/- 36.5402
22	2,4-Dichlorophenol	120-83-2	BCCK6969	99%	1,004.7	µg/mL	+/- 36.5571
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,004.6	µg/mL	+/- 36.5516
24	Naphthalene	91-20-3	STBL1057	99%	1,006.8	µg/mL	+/- 36.6335
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,005.9	µg/mL	+/- 36.5980
26	Hexachlorobutadiene	87-68-3	X05J	98%	1,004.1	µg/mL	+/- 36.5328
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,005.4	µg/mL	+/- 36.5793
28	2-Methylnaphthalene	91-57-6	STBL3028	99%	1,006.3	µg/mL	+/- 36.6144
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	990.2	µg/mL	+/- 36.0269
30	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	1,005.9	µg/mL	+/- 36.5975
31	2,4,6-Trichlorophenol	88-06-2	STBK8870	99%	1,004.7	µg/mL	+/- 36.5566
32	2,4,5-Trichlorophenol	95-95-4	3YFRE	97%	1,004.7	µg/mL	+/- 36.5571
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,005.3	µg/mL	+/- 36.5757
34	2-Nitroaniline	88-74-4	RP240715RSR	99%	1,004.8	µg/mL	+/- 36.5584
35	1,4-Dinitrobenzene	100-25-4	RP240703RSR	99%	1,004.5	µg/mL	+/- 36.5475
36	Acenaphthylene	208-96-8	214935V18H	95%	1,000.1	µg/mL	+/- 36.3888
37	1,3-Dinitrobenzene	99-65-0	TRC3-1075941-2-1	99%	1,004.9	µg/mL	+/- 36.5616
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,004.5	µg/mL	+/- 36.5489
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,005.2	µg/mL	+/- 36.5734
40	1,2-Dinitrobenzene	528-29-0	RP240701RSR	99%	1,005.9	µg/mL	+/- 36.6003
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3847
42	3-Nitroaniline	99-09-2	RP240708RSR	99%	1,004.6	µg/mL	+/- 36.5525
43	2,4-Dinitrophenol	51-28-5	D240927RSR	99%	1,005.0	µg/mL	+/- 36.5657
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,005.4	µg/mL	+/- 36.5803
45	2,4-Dinitrotoluene	121-14-2	102869V26E	99%	1,005.4	µg/mL	+/- 36.5803
46	4-Nitrophenol	100-02-7	20241120-1-AN	99%	1,005.7	µg/mL	+/- 36.5930
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-34476	99%	1,004.9	µg/mL	+/- 36.5616
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP240523RSR	99%	1,005.2	µg/mL	+/- 36.5739
49	Fluorene	86-73-7	10246250	98%	1,005.8	µg/mL	+/- 36.5948
50	4-Chlorophenyl phenyl ether	7005-72-3	002531K02D	99%	1,004.8	µg/mL	+/- 36.5584
51	Diethylphthalate	84-66-2	STBL3611	99%	1,005.3	µg/mL	+/- 36.5762
52	4-Nitroaniline	100-01-6	RP240830RSR	99%	1,005.5	µg/mL	+/- 36.5844
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	S241008RSR	99%	1,004.8	µg/mL	+/- 36.5589

54	Diphenylamine	122-39-4	MKCT1512	99%	1,005.2	µg/mL	+/- 36.5725
55	Azobenzene	103-33-3	BCCL3292	99%	1,004.7	µg/mL	+/- 36.5566
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5875
57	Hexachlorobenzene	118-74-1	15828800	99%	1,005.3	µg/mL	+/- 36.5789
58	Pentachlorophenol	87-86-5	RP240517RSR	99%	1,005.4	µg/mL	+/- 36.5825
59	Phenanthrene	85-01-8	MKCT3391	99%	1,004.8	µg/mL	+/- 36.5584
60	Anthracene	120-12-7	MKCW9141	99%	1,005.5	µg/mL	+/- 36.5834
61	Carbazole	86-74-8	15630800	99%	1,005.3	µg/mL	+/- 36.5789
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,005.5	µg/mL	+/- 36.5848
63	Fluoranthene	206-44-0	A0458721	99%	1,005.4	µg/mL	+/- <0.0001
64	Pyrene	129-00-0	BCCL8032	99%	1,005.2	µg/mL	+/- 36.5734
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,004.8	µg/mL	+/- 36.5584
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCR8567	99%	1,004.5	µg/mL	+/- 36.5480
67	Benz(a)anthracene	56-55-3	I60012022BAA	99%	1,005.5	µg/mL	+/- 36.5844
68	Chrysene	218-01-9	RP241212RSR	99%	1,005.5	µg/mL	+/- 36.5848
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCS8065	99%	1,004.7	µg/mL	+/- 36.5548
70	Di-n-octyl phthalate	117-84-0	15817300	99%	1,004.8	µg/mL	+/- 36.5607
71	Benzo(b)fluoranthene	205-99-2	022013B	99%	1,005.1	µg/mL	+/- 36.5716
72	Benzo(k)fluoranthene	207-08-9	012022K	98%	1,004.6	µg/mL	+/- 36.5511
73	Benzo(a)pyrene	50-32-8	NQLXA	98%	1,004.2	µg/mL	+/- 36.5377
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,004.1	µg/mL	+/- 36.5337
75	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	1,005.7	µg/mL	+/- 36.5930
76	Benzo(g,h,i)perylene	191-24-2	RP241014RSR	98%	1,005.4	µg/mL	+/- 36.5814

* 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.)

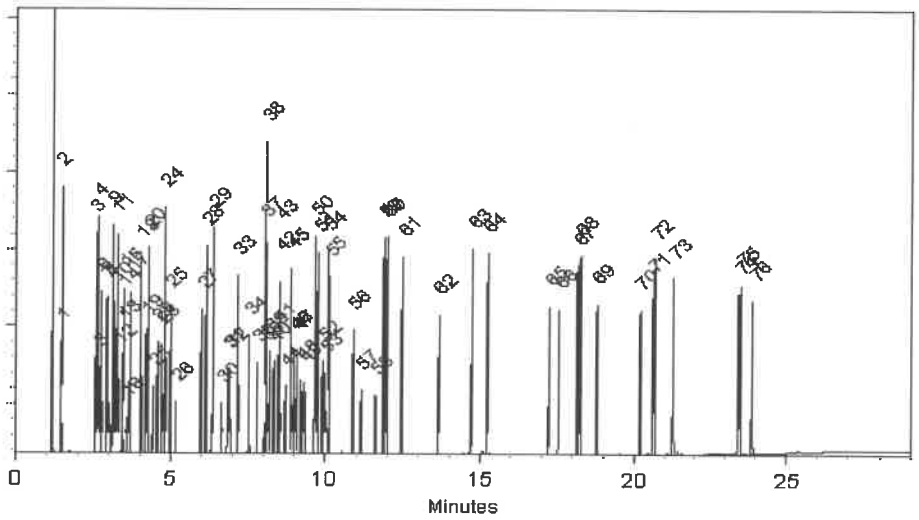
Inj. Temp:
250°C

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.

Penelope Riglin - Operations Tech I

Date Mixed: 12-Jan-2025 **Balance Serial #** 1128360905

Dillan Murphy - Operations Technician I

Date Passed: 21-Jan-2025

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

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Bellefonte, PA 16823-8812
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Fax: 1-814-353-1309

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ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

513118 ↓ 513147 } RC/ 5/20/25.

CERTIFIED VALUES

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

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

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

Quality Confirmation Test

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

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

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

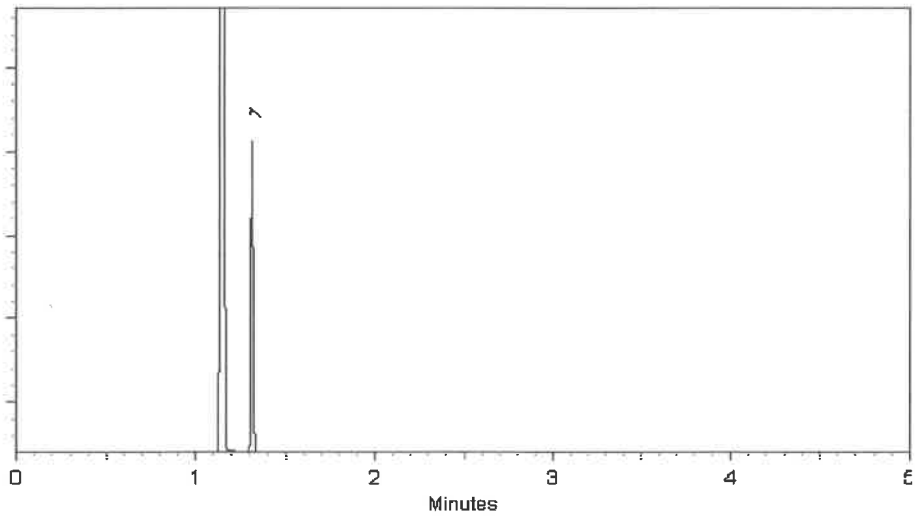
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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

Penelope Riglin - Operations Tech I

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

Dillan Murphy - Operations Technician I

Date Passed: 11-Nov-2024

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

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

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

513118 ↓ 513147 } RC/ 5/20/25.

CERTIFIED VALUES

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

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

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

Quality Confirmation Test

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

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

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

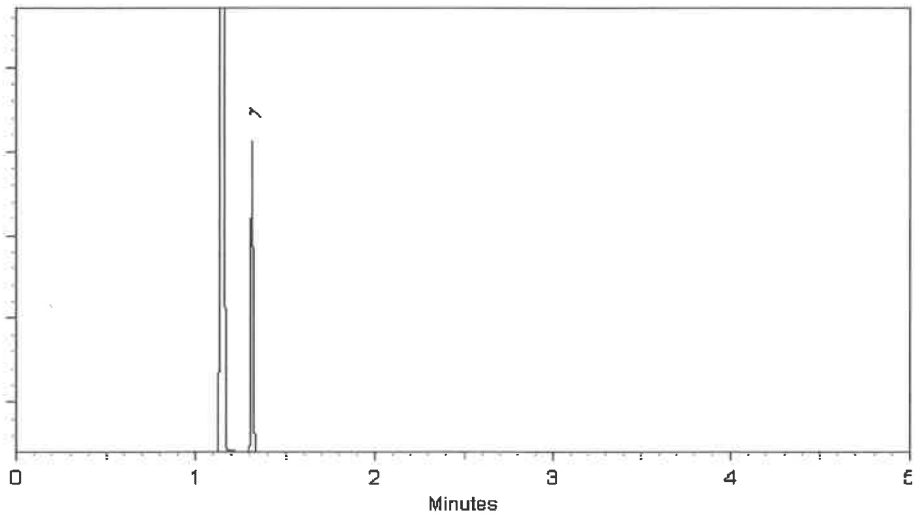
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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Penelope Riglin - Operations Tech I

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

Dillan Murphy - Operations Technician I

Date Passed: 11-Nov-2024

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

513118 ↓ 513147 } RC/ 5/20/25.

CERTIFIED VALUES

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

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

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

Quality Confirmation Test

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

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

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

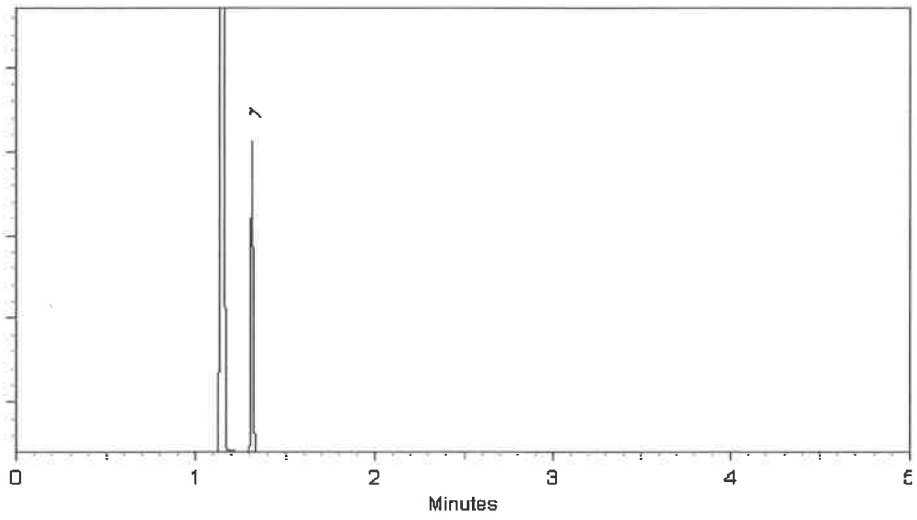
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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

Penelope Riglin - Operations Tech I

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

Dillan Murphy - Operations Technician I

Date Passed: 11-Nov-2024

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

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Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 555871 **Lot No.:** A0226283

Description : Custom 4-Nitrophenol Standard

Custom 4-Nitrophenol Standard 25,000µg/mL, Methanol, 1mL/ampul

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

Expiration Date : June 30, 2028 **Storage:** 10°C or colder

Ship: Ambient

S13158 } RC/
↓ } 6/4/25
S13167

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	4-Nitrophenol	100-02-7	20241120-1-AN	99%	25,192.0 µg/mL	+/- 783.0517

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

Morgan Craighead - Mix Technician

Date Mixed: 02-Jun-2025 **Balance:** C322230531

REVIEWED

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

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ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

Description : SV Internal Standard Mix 2mg/ml

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

S13168 ↓ S13197 } AC 6/9/25

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

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

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

CERTIFIED VALUES

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

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

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

RESTEK

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Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

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S13198 ↓ S13207 } AC 6/11/25

Catalog No. : 555868 **Lot No.:** A0226493

Description : Custom Benzidine Standard

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

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

Expiration Date : June 30, 2028 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Benzidine	92-87-5	S250227ECS	99%	25,004.0 µg/mL	+/- 495.8040

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

Laith Clemente - Operations Technician I **Date Mixed:** 09-Jun-2025 **Balance:** 1122030677

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

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

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number: 70434
Lot Number: 121622
Description: Acetophenone

Expiration Date: 121627
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

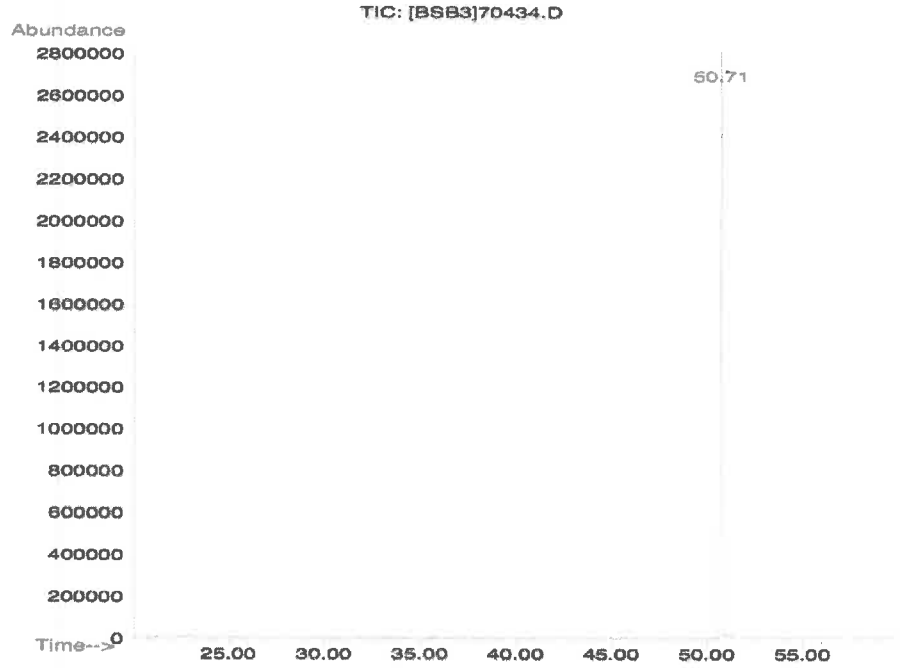
Solvent(s): **Lot#**
Methylene chloride C21F09CAS0000DCM

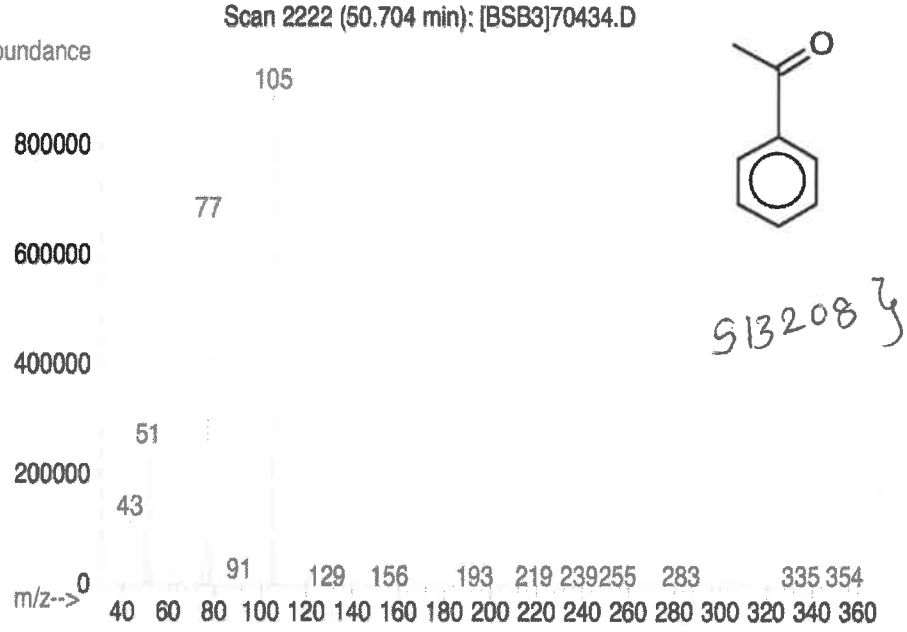
		121622
Formulated By:	Benson Chan	DATE
		121622
Reviewed By:	Pedro L. Rentas	DATE

Weight(s) shown below were combined and diluted to (mL): 50.0 ± 0.001 Flask Uncertainty; 5E-05 Balance 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 Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Acetophenone	434	04511JX	1000	99	0.2	0.05055	0.05075	1004.0	4.5	98-86-2	N/A	orl-rat 815mg/kg

Method: GC6MSD-1. **Detector:** MSD. **Column:** Vocol (60m X 0.25mm ID X 1.5µm film thickness). **Oven Profile:** Temp. 1 = 35°C (10min.), Temp. 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector Temp.= 200°C, Detector Temp. = 220°C. **Analyst:** Candice Warren. Solvent delay = 25 minutes.

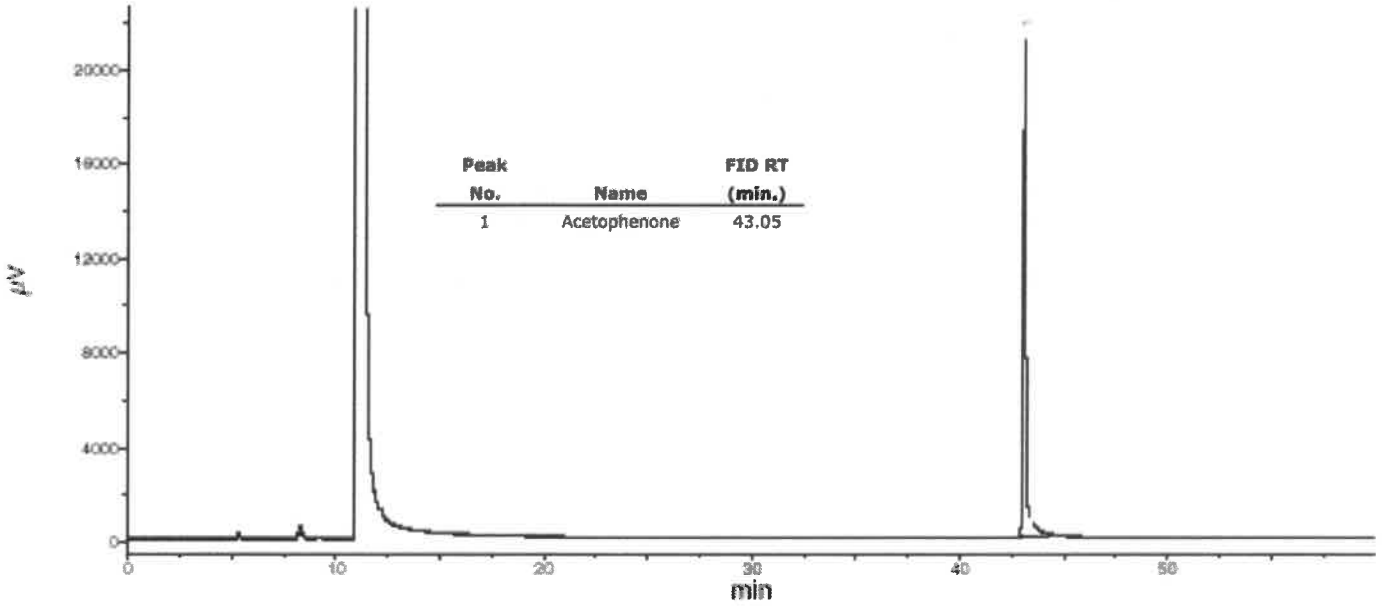




S13208 Y RC/ 6/19/25

- 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).

Comments
GC13-M1 Analysis by Melissa Stonier
Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness
Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min.,
Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min.
Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.),
Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C.
FID Signal = Edaq Channel 1
Standard injection = 0.5µL, Range=3



Peak No.	Name	FID RT (min.)
1	Acetophenone	43.05

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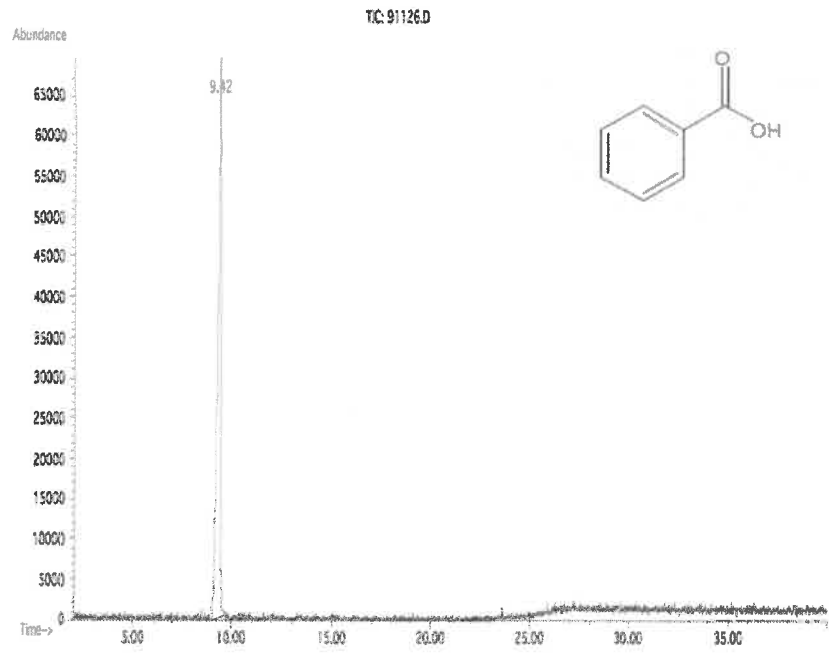
CERTIFIED WEIGHT REPORT

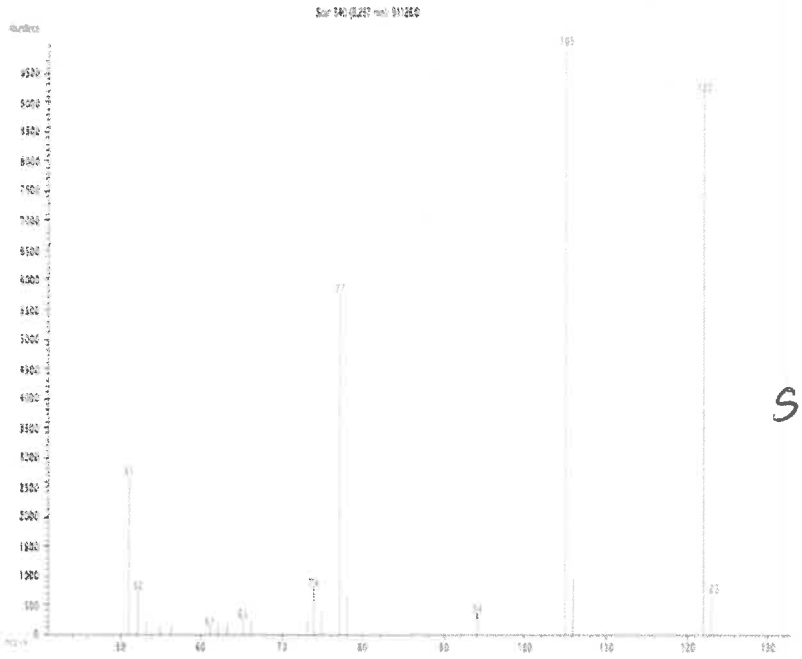
Part Number:	**91126**	**Solvent(s):**	**Lot#**	
Lot Number:	060625	Methylene chloride	23343	
Description:	Benzoic acid			
Expiration Date:	060630			
Recommended Storage:	Refrigerate (4 °C)			
Nominal Concentration (µg/mL):	2000			
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty	
Weight(s) shown below were combined and diluted to (mL):	100.0	0.031	Flask Uncertainty	

		060625
Formulated By:	Anthony Mahoney	DATE
		060625
Reviewed By:	Pedro L. Rentas	DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Benzoic acid	34	11930AW	2000.0	99	0.2	0.20211	0.20227	2001.6	8.2	65-85-0	N/A	orl-rat 1700mg/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: Melissa Stonier.





S132097 RC 6/19/25

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (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).

Rev 1.0, 2/25/2025

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CERTIFIED WEIGHT REPORT

Part Number: 34571
Lot Number: 092324
Description: 1,2,4,5-Tetrachlorobenzene

Solvent(s): Methanol **Lot#** EI863-US

Expiration Date: 092334
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 5000
NIST Test ID#: 6UTB

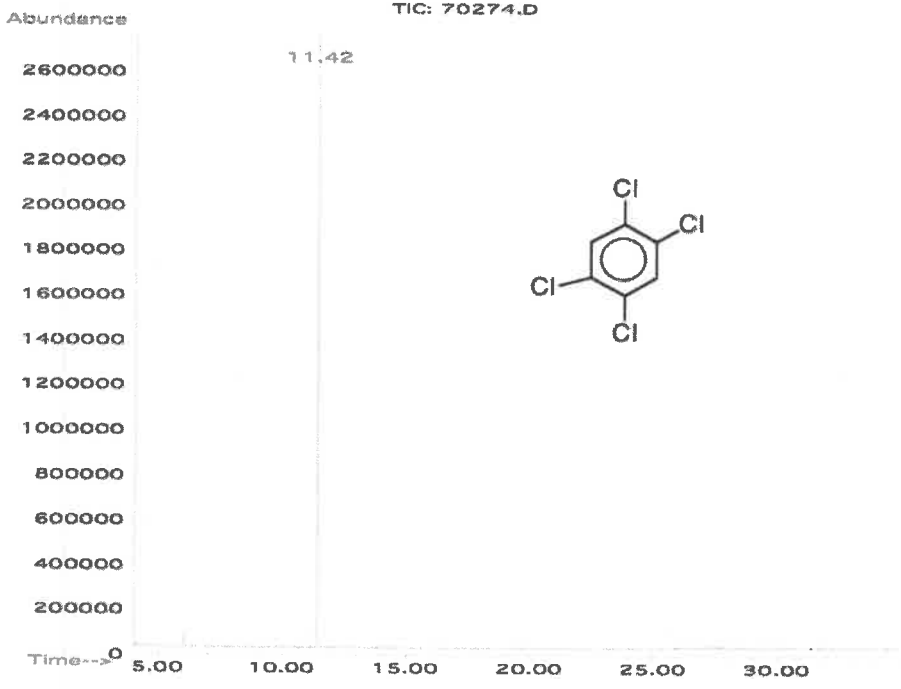
Weight(s) shown below were combined and diluted to (mL): 25.0 | 5E-05 Balance Uncertainty | 0.004 Flask Uncertainty

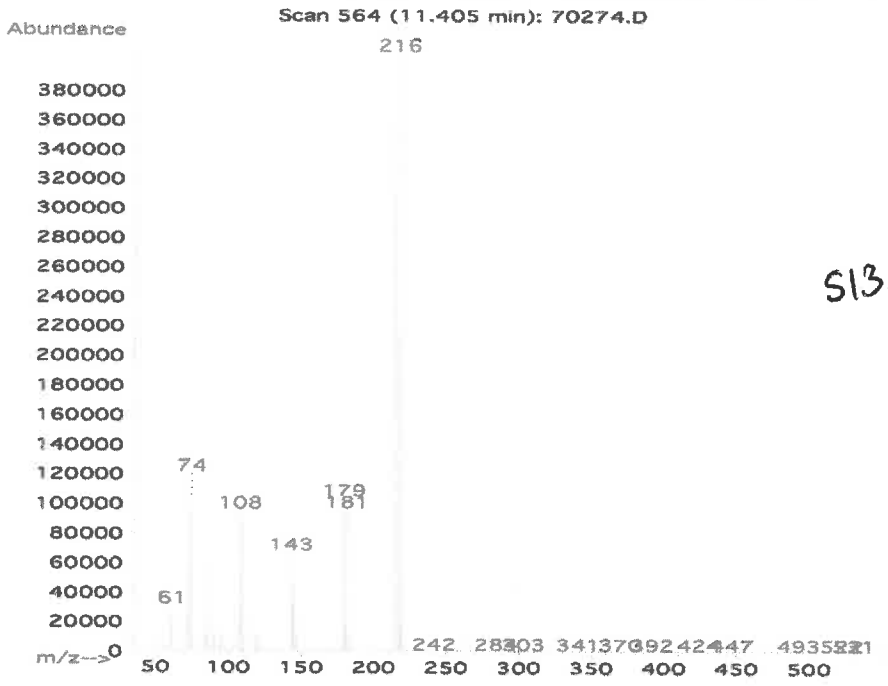
CAUTION: Sonicate Before Use

	Formulated By: Lawrence Barry	DATE
092324		
	Reviewed By: Pedro L. Rentas	DATE
092324		

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight (g)	Actual Weight (g)	Actual Conc(µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. 1,2,4,5-Tetrachlorobenzene	274	10408AS	5000	98	0.20	0.12761	0.12765	5001.4	20.8	95-94-3	N/A	orl-rat 1500mg/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.





S132113 RC 6/19/25.

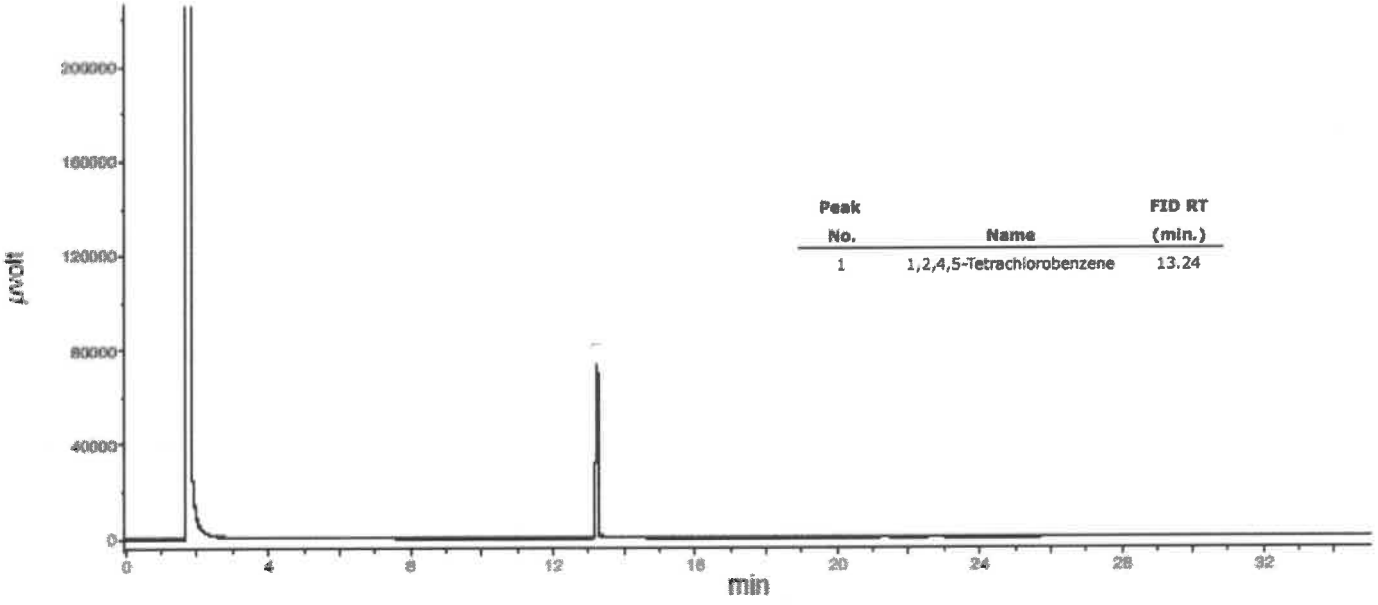
- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value,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

Run 31, "P34571 L092324 [5000µg/mL in MeOH]"

Run Length: 35.00 min, 20999 points at 10 points/second.
Created: Fri, Jan 3, 2025 at 11:24:40 AM.
Sampled: Sequence "010225-GC4M1", Method "GC4-M1".
Analyzed using Method "GC4-M1".

Comments

GC4-M1 Analysis by Melissa Stonier
Column ID SPB5 L#60062-01A : 30 meter x 0.53mm x 1.5um Film Thickness
Flow rates; Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Helium (make-up) = 25 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 uL, Range = 7



Peak No.	Name	FID RT (min.)
1	1,2,4,5-Tetrachlorobenzene	13.24

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Catalog No. : 555223 **Lot No.:** A0228451

S13239 ↓ S13268 } RC 08/06/25

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

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 Suckar - Mix Technician **Date Mixed:** 01-Aug-2025 **Balance:** 1128360905

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

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Catalog No. : 555223 **Lot No.:** A0228451

S13239 ↓ S13268 } RC 08/06/25

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

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 Suckar - Mix Technician **Date Mixed:** 01-Aug-2025 **Balance:** 1128360905

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

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Catalog No. : 555223 **Lot No.:** A0228451

S13239 ↓ S13268 } RC 08/06/25

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

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 Suckar - Mix Technician **Date Mixed:** 01-Aug-2025 **Balance:** 1128360905

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

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Catalog No. : 555223 **Lot No.:** A0228451

S13239 ↓ S13268 } RC 08/06/25

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

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 Suckar - Mix Technician **Date Mixed:** 01-Aug-2025 **Balance:** 1128360905

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

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Catalog No. : 555223 **Lot No.:** A0228451

S13239 ↓ S13268 } RC 08/06/25

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

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 Suckar - Mix Technician **Date Mixed:** 01-Aug-2025 **Balance:** 1128360905

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

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Catalog No. : 555223 **Lot No.:** A0228451

S13239 ↓ S13268 } RC 08/06/25

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

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 Suckar - Mix Technician **Date Mixed:** 01-Aug-2025 **Balance:** 1128360905

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

gravimetric

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 555224 **Lot No.:** A0228494

S13269 ↓ S13298 } RC1 08/06/25

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 : August 31, 2027 **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%	1,002.0 µg/mL	+/- 29.453715
2	Acetophenone	98-86-2	STBH8205	99%	1,001.0 µg/mL	+/- 29.424320
3	Benzaldehyde	100-52-7	RD250319RSR	99%	1,003.0 µg/mL	+/- 29.483110
4	Benzoic acid	65-85-0	MKCX1578	99%	1,001.0 µg/mL	+/- 29.424320
5	Biphenyl	92-52-4	MKCS5928	99%	1,002.0 µg/mL	+/- 29.453715

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

Laith Clemente - Operations Technician I **Date Mixed:** 04-Aug-2025 **Balance:** 1128360905

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Catalog No. : 555869 **Lot No.:** A0201702

Description : Custom Hexachlorocyclopentadiene Standard

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

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

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

Ship: Ambient

513148
↓
513157
RC
11/13/23

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Hexachlorocyclopentadiene	77-47-4	099063P13G	99%	25,244.0 µg/mL	+/- 450.6896

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

Brittany Federinko - Operations Tech I

Date Mixed: 05-Sep-2023 **Balance:** B707717271

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