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Prep Standard - Chemical Standard Summary

Order ID : P1747

Test : SVOC-NYCD

Prepbatch ID : PB159613,

Sequence ID/Qc Batch ID: BF031524,BM031824,

Standard ID :
EP2416,EP2439,EP2458,SP6397,SP6405,SP6406,SP6419,SP6420,SP6421,SP6422,SP6423,SP6424,SP6425,SP6426,
SP6427,SP6438,SP6439,

Chemical ID :
E3551,E3657,E3673,E3678,E3699,E3706,E3707,M5673,S10101,S10243,S10396,S10591,S10798,S10971,S10995,S 11
014,S11089,S11094,S11100,S11136,S11137,S11142,S11144,S11292,S11293,S11294,S11295,S11296,S11297,S11298,S
11299,S11411,S11523,S11556,S11584,S11585,S11587,S11588,S11589,S11590,S11596,S11597,S11751,S11752,S11753
,S11754,S11755,S11881,S11883,S11884,S11885,S11886,S11887,S11888,S11889,S12013,S12017 10ul/1000ul
sample,S9923,W2606,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
314	1.1 H2SO4 SOLN	EP2416	11/29/2023	05/29/2024	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 11/29/2023

FROM 1000.00000ml of M5673 + 1000.00000ml of W2606 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1874	10 N SODIUM HYDROXIDE SOLN	EP2439	01/19/2024	06/03/2024	Rajesh Parikh	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 01/19/2024

FROM 1000.00000ml of W2606 + 400.00000gram of E3657 = Final Quantity: 1000.000 ml

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2458	03/08/2024	07/03/2024	Rajesh Parikh	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 03/08/2024

FROM 4000.00000gram of E3551 = Final Quantity: 4000.000 gram

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3895	50 ug/ml DFTPP 8270E	SP6397	01/15/2024	06/29/2024	Jagrut Upadhyay	None	None	mohammad ahmed 01/15/2024

FROM 1.00000ml of S10243 + 19.00000ml of E3673 = 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)	SP6405	01/19/2024	05/15/2024	Jagrut Upadhyay	None	None	mohammad ahmed 01/22/2024

FROM 0.04000ml of S10971 + 0.08000ml of S10995 + 0.10000ml of S11751 + 0.20000ml of S11556 + 0.20000ml of S11584 + 0.20000ml of S11881 + 1.18000ml of E3678 = 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	SP6406	01/19/2024	05/15/2024	Jagrut Upadhyay	None	None	mohammad ahmed 01/22/2024

FROM 0.01000ml of S11523 + 0.60000ml of E3678 + 0.40000ml of SP6405 = 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
3764	8270/625 Stock solution 100 ng	SP6419	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.26700ml of S10101 + 0.40000ml of S11411 + 0.50000ml of S9923 + 1.00000ml of S10798 + 1.00000ml of S11089 + 1.00000ml of S11094 + 1.00000ml of S11100 + 1.00000ml of S11144 + 3.83300ml of E3706 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
413	80 ng BNA ICC, 80 PPM	SP6420	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.20000ml of E3706 + 0.80000ml of SP6419 = 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
412	60 ng BNA ICC, 60 PPM	SP6421	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.40000ml of E3706 + 0.60000ml of SP6419 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
411	50 ng BNA ICC, 50 PPM	SP6422	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.50000ml of E3706 + 0.50000ml of SP6419 = 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
410	40 ng BNA ICC, 40 PPM	SP6423	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.60000ml of E3706 + 0.40000ml of SP6419 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3678	20 ng BNA ICC, 20 PPM	SP6424	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.80000ml of E3706 + 0.20000ml of SP6419 = 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
408	10 ng BNA ICC, 10 PPM	SP6425	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.90000ml of E3706 + 0.10000ml of SP6419 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
407	5 ng BNA ICC, 5 PPM	SP6426	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.95000ml of E3706 + 0.05000ml of SP6419 = 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
175	2.5 ng BNA ICC, 2.5 PPM	SP6427	02/22/2024	05/02/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/23/2024

FROM 0.01000ml of S12013 + 0.50000ml of E3706 + 0.50000ml of SP6426 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
20	625 Surrogate Solution, 100 PPM BN/100 PPM ACID	SP6438	02/27/2024	07/11/2024	Jagrut Upadhyay	None	None	mohammad ahmed 02/27/2024

FROM 1.00000ml of S10971 + 2.00000ml of S10995 + 97.00000ml of E3699 = Final Quantity: 100.000 ml

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SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
171	8270/625 Spike Solution, 50/100 PPM	SP6439	02/29/2024	05/14/2024	Jagrut Upadhyay	None	None	Yogesh Patel 03/12/2024

FROM

0.10000ml of S11137 + 0.30000ml of S11136 + 0.40000ml of S10396 + 0.40000ml of S10591 + 0.40000ml of S11014 + 0.40000ml of S11142 + 0.90000ml of S11299 + 0.90000ml of S11597 + 0.90000ml of S11881 + 1.10000ml of S11754 + 1.30000ml of S11292 + 1.30000ml of S11293 + 1.30000ml of S11294 + 1.30000ml of S11295 + 1.30000ml of S11296 + 1.30000ml of S11297 + 1.30000ml of S11298 + 1.30000ml of S11584 + 1.30000ml of S11585 + 1.30000ml of S11587 + 1.30000ml of S11588 + 1.30000ml of S11589 + 1.30000ml of S11590 + 1.30000ml of S11596 + 1.30000ml of S11752 + 1.30000ml of S11753 + 1.30000ml of S11755 + 1.30000ml of S11883 + 1.30000ml of S11884 + 1.30000ml of S11885 + 1.30000ml of S11886 + 1.30000ml of S11887 + 1.30000ml of S11888 + 1.30000ml of S11889 + 163.00000ml of E3699 = Final Quantity: 200.000 ml

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	23B1556310	06/03/2024	12/04/2023 / Rajesh	12/01/2023 / Rajesh	E3657

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	23K0962009	06/29/2024	12/29/2023 / Rajesh	12/15/2023 / Rajesh	E3673

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)	23K0962009	07/16/2024	01/16/2024 / Rajesh	01/11/2024 / Rajesh	E3678

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)	23H14626005	08/21/2024	02/21/2024 / RUPESH	02/14/2024 / RUPESH	E3699

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)	24A1562007	08/19/2024	02/19/2024 / RUPESH	01/31/2024 / RUPESH	E3706

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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)	24A1562007	08/28/2024	02/28/2024 / Rajesh	02/19/2024 / Rajesh	E3707

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-112090-04 / CLP Acid Surrogate Solution, 7500 mg/L, 1ml	440246	05/02/2024	11/02/2023 / Jagrut	12/09/2021 / Christian	S10101

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31615 / SV Mixture, GC/MS Tuning Mixture, CH2Cl2, 1mL,	A0182667	07/15/2024	01/15/2024 / Jagrut	03/18/2022 / Christian	S10243

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]	A0185300	05/15/2024	11/15/2023 / yogesh	05/18/2022 / Christian	S10396

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]	A0186373	08/29/2024	02/29/2024 / Jagrut	07/05/2022 / Christian	S10591

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-110816-01 / Custom 8270 Mix, 4-79, 1000 mg/L, 1 mL, (Maximum Expiration: 180 Days)	414127	08/22/2024	02/22/2024 / Jagrut	09/20/2022 / Christian	S10798

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	A0188108	07/11/2024	01/11/2024 / Jagrut	12/28/2022 / Christian	S10971

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	A0189418	07/11/2024	01/11/2024 / Jagrut	12/28/2022 / Christian	S10995

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]	A0193449	05/14/2024	11/14/2023 / yogesh	01/13/2023 / Christian	S11014

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	Z-110817-01 / Custom 8270 Mix, 4-55, 1000 mg/L, 1 ml, (Maximum Expiration: 90 Days)	414125	08/22/2024	02/22/2024 / Jagrut	02/07/2023 / Christian	S11089

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)	441819	06/01/2024	02/22/2024 / Jagrut	02/07/2023 / Christian	S11094

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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	478725	08/22/2024	02/22/2024 / Jagrut	02/07/2023 / Christian	S11100

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]	A0194698	08/29/2024	02/29/2024 / Jagrut	02/20/2023 / Christian	S11136

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]	A0194698	05/15/2024	11/15/2023 / yogesh	02/20/2023 / Christian	S11137

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]	A0194702	07/18/2024	01/18/2024 / Rahul	02/20/2023 / Christian	S11142

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)	406703	08/22/2024	02/22/2024 / Jagrut	03/06/2023 / Christian	S11144

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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11292

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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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11293

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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11294

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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11295

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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11296

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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11297

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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11298

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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]	A0197354	08/29/2024	02/29/2024 / Jagrut	04/24/2023 / Christian	S11299

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	503442	06/27/2024	12/27/2023 / Rahul	07/17/2023 / yogesh	S11411

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	A0196843	07/17/2024	01/17/2024 / Rahul	08/28/2023 / Yogesh	S11523

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]	A0201940	05/15/2024	11/15/2023 / yogesh	09/18/2023 / Kiran	S11556

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]	A0201998	07/18/2024	01/18/2024 / Rahul	09/18/2023 / Kiran	S11584

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]	A0201998	07/23/2024	01/23/2024 / Rahul	09/18/2023 / Kiran	S11585

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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]	A0201998	08/29/2024	02/29/2024 / Jagrut	09/18/2023 / Kiran	S11587

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]	A0201998	08/29/2024	02/29/2024 / Jagrut	09/18/2023 / Kiran	S11588

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]	A0201998	08/29/2024	02/29/2024 / Jagrut	09/18/2023 / Kiran	S11589

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]	A0201998	08/29/2024	02/29/2024 / Jagrut	09/18/2023 / Kiran	S11590

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]	A0201998	05/15/2024	11/15/2023 / yogesh	09/18/2023 / Kiran	S11596

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]	A0201998	08/29/2024	02/29/2024 / Jagrut	09/18/2023 / Kiran	S11597

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0196453	07/18/2024	01/18/2024 / Rahul	11/21/2023 / Rahul	S11751

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0196453	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / Rahul	S11752

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0196453	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / Rahul	S11753

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0196453	07/23/2024	01/23/2024 / Rahul	11/21/2023 / Rahul	S11754

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0196453	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / Rahul	S11755

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]	A0197982	07/19/2024	01/19/2024 / Jagrut	11/21/2023 / rahul	S11881

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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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11883

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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11884

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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11885

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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11886

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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11887

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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11888

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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]	A0197982	08/29/2024	02/29/2024 / Jagrut	11/21/2023 / rahul	S11889

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	A0201320	08/20/2024	02/20/2024 / Rahul	12/21/2023 / Rahul	S12013

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
CPI International	z-010223-01 / 1,4-Dioxane Solution, 2,000mg/L, 1ml	459696	06/27/2024	12/27/2023 / Rahul	09/03/2021 / Christian	S9923

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

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Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-010074-07	406703	≤ -10 °C	Methylene Chloride	3/30/2025	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	99.5	74.3.26P	989 ± 7.53

Received on
02/07/23
by
CG

S11084
to
S11088

*Not a certified value

Certified By: _____
Jacob Mulloy
Chemist

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Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110817-01	414125	≤ -10 °C	Methylene Chloride	6/21/2025	Custom 8270 Mix, 4-55, 1000 mg/L, 1 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
acetophenone	98-86-2	99.2	85.8.1P	998 ± 11.5
benzoic acid	65-85-0	100	123.7.1P	1010 ± 5.88
biphenyl	92-52-4	99.9	366.29.1P	999 ± 5.82
1,2,4,5-tetrachlorobenzene	95-94-3	99.7	53.7.2P	993 ± 5.79

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S11089
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S11093

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Certified By: _____
Shane Overcash
Chemist

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

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

Received on
09/20/22
by CG

S10795
to
S10799

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Certified By: _____
Shane Overcash
Chemist

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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

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02/25/21
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S9236
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S9240

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Certified By: Erica Castiglione

Erica Castiglione
Chemist

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Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-010442-07	441819	≤ -10 °C	Methylene Chloride	6/1/2024	Benzaldehyde Solution, 1000 mg/L, 1.3 mL

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
benzaldehyde	100-52-7	99.5	442.3.2.1P	1001 ± 12.89

Received on
02/07/23
by CG
S 11094
to
S 11095

*Not a certified value

Certified By: Katherine Wood

Katherine Wood
Chemist

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

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

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

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Certified By: Joanna Radu

Joanna Radu
Chemist

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Received on 02/01/23 by CG S11100

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Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110381-01	478725	≤ -10 °C	Methylene Chloride	3/29/2027	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	997.8 ± 9.78
acenaphthylene	208-96-8	97.6	14.290.1P	1001 ± 9.81
aniline	62-53-3	99.9	64.7.1P	999.6 ± 9.79
anthracene	120-12-7	99.5	15.7.1P	999.4 ± 9.8
azobenzene	103-33-3	98.1	252.7.2P	1001 ± 9.82
benzo[a]anthracene	56-55-3	98.7	16.7.2.5P	1002 ± 5.75
benzo[b]fluoranthene	205-99-2	98.7	17.1.16P	1000 ± 9.8
benzo[k]fluoranthene	207-08-9	98.9	18.421.4P	1005 ± 11.01
benzo[ghi]perylene	191-24-2	95	19.286.3.1P	999.4 ± 13.96
benzo[a]pyrene	50-32-8	98.3	20.286.1P	999.9 ± 5.74
benzyl alcohol	100-51-6	99.9	65.18.1P	1002 ± 9.83
bis(2-chloroethoxy)methane	111-91-1	98.5	31.3.11P	1000 ± 17.05
bis(2-chloroethyl)ether	111-44-4	99.8	32.7.1P	1000 ± 13.85
bis(2-chloro-1-methylethyl) ether	108-60-1	99.5	34.3.14P	999.7 ± 14.69
bis(2-ethylhexyl)adipate	103-23-1	99.5	874.7.1P	1006 ± 9.86
bis(2-ethylhexyl)phthalate	117-81-7	99.4	33.29.1P	1004 ± 17.12
4-bromophenyl phenyl ether	101-55-3	99.4	35.7.1.1P	1000 ± 13.85
butyl benzyl phthalate	85-68-7	98	36.1.5P	990.8 ± 16.9
carbazole	86-74-8	99	239.7.1P	996.9 ± 9.81

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Certified By: _____

Clint Tipton
Chemist

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Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 478725 **Expiration Date:** 3/29/2027

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
4-chloroaniline	106-47-8	100	66.7.1P	1004 ± 9.83
4-chlorophenylphenyl ether	7005-72-3	98	37.158.2P	1000 ± 17.05
4-chloro-3-methylphenol	59-50-7	99.9	102.7.1.1P	999.7 ± 5.74
2-chloronaphthalene	91-58-7	99.8	42.7.5.2P	1010 ± 9.89
2-chlorophenol	95-57-8	99.9	103.1.3.1P	999.7 ± 5.74
chrysene	218-01-9	96	21.286.2P	1001 ± 13.98
dibenz[a,h]anthracene	53-70-3	99.44	22.286.3P	1010 ± 9.85
dibenzofuran	132-64-9	100	67.7.2.1P	1001 ± 9.76
di-n-butyl phthalate	84-74-2	99.8	40.9.2P	999.8 ± 17.05
1,2-dichlorobenzene	95-50-1	99.5	43.1.2P	992.4 ± 9.72
1,3-dichlorobenzene	541-73-1	99.8	44.1.2P	993.8 ± 9.73
1,4-dichlorobenzene	106-46-7	99.9	45.29.2P	991.8 ± 9.71
2,4-dichlorophenol	120-83-2	99.2	104.9.1.1P	1011 ± 5.8
diethyl phthalate	84-66-2	99.8	38.7.1P	999.1 ± 13.84
2,4-dimethylphenol	105-67-9	99.6	105.7.1.1P	999.3 ± 13.84
dimethyl phthalate	131-11-3	99.9	39.9.2P	1001 ± 13.87
1,2-dinitrobenzene	528-29-0	99.86	86.7.3.1P	1001 ± 9.76
1,3-dinitrobenzene	99-65-0	100	313.7.2P	1002 ± 9.83
1,4-dinitrobenzene	100-25-4	99.5	907.1.2P	998.5 ± 13.95
2,4-dinitrophenol	51-28-5	99.9	106.1.6DP	1000 ± 13.85
2,4-dinitrotoluene	121-14-2	100	87.7.3P	1002 ± 13.88
2,6-dinitrotoluene	606-20-2	99.4	88.7.2.1P	1001 ± 13.87
di-n-octyl phthalate	117-84-0	99.1	41.7.5P	989.4 ± 13.7
diphenylamine	122-39-4	99.9	78.29.1P	999.8 ± 17.05
2,3,5,6-tetrachlorophenol	935-95-5	99	1112.18.1P	1012 ± 14.14
fluoranthene	206-44-0	98.6	23.7.3P	1005 ± 5.77
fluorene	86-73-7	98.5	24.29.1P	1002 ± 9.82

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Certified By: Clint Tipton
Chemist

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Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 478725 **Expiration Date:** 3/29/2027

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
hexachlorobenzene	118-74-1	99	46.158.4P	994.2 ± 13.88
hexachlorobutadiene	87-68-3	98	47.158.3.1P	988.2 ± 13.8
hexachlorocyclopentadiene	77-47-4	96.5	48.2.1P	994.5 ± 13.88
hexachloroethane	67-72-1	99.9	49.1.4P	993.4 ± 9.73
indeno[1,2,3-cd]pyrene	193-39-5	98	25.286.3P	1002 ± 5.75
isophorone	78-59-1	98.8	90.1.2P	999.9 ± 5.74
2-methyl-4,6-dinitrophenol	534-52-1	100	107.1.4.3DP	1003 ± 5.76
1-methylnaphthalene	90-12-0	98.4	249.7.4P	1001 ± 9.81
2-methylnaphthalene	91-57-6	97.4	68.7.2P	1008 ± 5.79
2-methylphenol	95-48-7	99.6	114.7.3P	1002 ± 13.88
3-methylphenol	108-39-4	99.1	115.7.4P	499.7 ± 6.92
4-methylphenol	106-44-5	99.5	116.7.1P	500.5 ± 6.93
naphthalene	91-20-3	99.8	26.9.2P	998.8 ± 5.73
2-nitroaniline	88-74-4	99.7	69.29.1P	1003 ± 9.82
3-nitroaniline	99-09-2	100	70.7.2P	1000 ± 9.79
4-nitroaniline	100-01-6	99.7	71.29.1P	999.8 ± 9.79
nitrobenzene	98-95-3	100	94.7.1P	1001 ± 13.87
2-nitrophenol	88-75-5	99.1	108.29.1P	1000 ± 13.85
4-nitrophenol	100-02-7	99.9	109.8.1P	1000 ± 5.74
N-nitrosodimethylamine	62-75-9	99.5	57.3.19P	999.4 ± 14.68
N-nitrosodi-n-propylamine	621-64-7	99.8	59.286.1P	1001 ± 17.07
pentachlorophenol	87-86-5	99	110.1.7P	1000 ± 13.85
phenanthrene	85-01-8	98.9	27.1.3P	1002 ± 13.99
phenol	108-95-2	100	112.7.1P	1011 ± 13.97
pyrene	129-00-0	98.5	28.9.1.1P	1011 ± 5.8
pyridine	110-86-1	100	101.24.1P	999.6 ± 9.74
2,3,4,6-Tetrachlorophenol	58-90-2	91.8	120.421.1P	999.7 ± 13.96

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Certified By: Clint Tipton
Chemist

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Certificate of Analysis

Catalog No.: Z-110381-01 **Lot No.:** 478725 **Expiration Date:** 3/29/2027

Compound	CAS No.	Purity (%)	Compound Lot No.	Concentration, mg/L
1,2,4-trichlorobenzene	120-82-1	99.6	54.29.1P	999.2 ± 9.79
2,4,5-trichlorophenol	95-95-4	96.5	121.7.1.1P	1010 ± 13.99
2,4,6-trichlorophenol	88-06-2	99.6	113.7.1P	1001 ± 13.87

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Certified By: Thomas C Tipton

Clint Tipton
Chemist

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Received on 03/08/22 by CG S10242 to S10247

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

Description : GC/MS Tuning Mixture

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

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

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

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

CERTIFIED VALUES

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

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

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

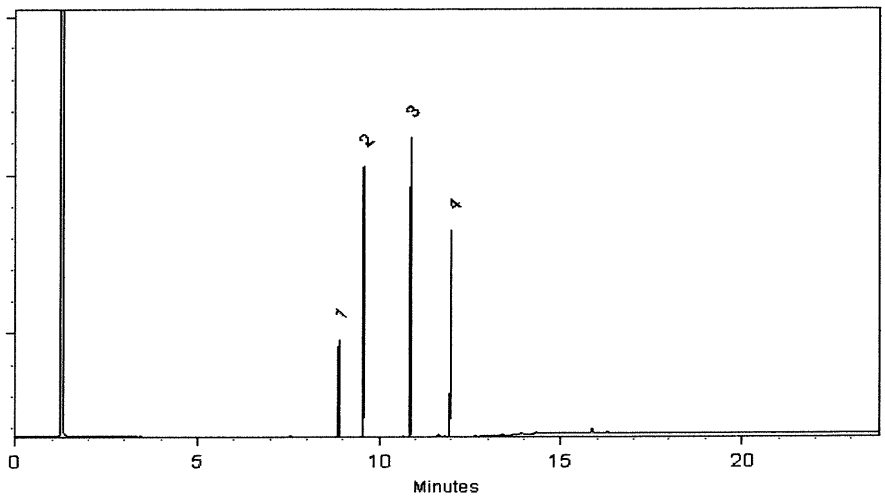
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Morgan Craighead - Mix Technician

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

Merlina Cowan - Operations Tech I

Date Passed: 10-Mar-2022

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

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

Received by CG on 05/19/22

S10393 to S10402

Catalog No. : 555871 **Lot No.:** A0185300

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 : May 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	4-Nitrophenol	25,060.0 µg/mL	+/- 231.9100 µg/mL	Gravimetric
	CAS # 100-02-7 (Lot MKCN1089)		+/- 753.2622 µg/mL	Unstressed
	Purity 99%		+/- 905.6020 µg/mL	Stressed

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

Katelyn McGinnis - Operations Tech I

Date Mixed: 16-May-2022 **Balance:** 1128342314

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

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

Received by
CG
on
07/05/22
S 10583
to
S 10592

Catalog No. : 555868 **Lot No.:** A0186373

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, 2025 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Benzidine	25,200.0 µg/mL	+/- 233.2055 µg/mL	Gravimetric
	CAS # 92-87-5 (Lot 220511RSR)		+/- 351.6606 µg/mL	Unstressed
	Purity 99%		+/- 512.6054 µg/mL	Stressed

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

Tom Suckar - Mix Technician **Date Mixed:** 16-Jun-2022 **Balance:** 1122030677

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

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Certificate #3222.02

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

Received by CG on 12/28/22 S10951 to S10980

Catalog No. : 31087 **Lot No.:** A0188108

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 : August 31, 2030 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Fluorophenol **CAS #** 367-12-4 **Purity** 99%	(Lot STBF3761V)	10,088.5 µg/mL	+/- 58.6554 µg/mL +/- 294.4162 µg/mL +/- 357.2628 µg/mL		Gravimetric Unstressed Stressed
2	Phenol-d6 **CAS #** 13127-88-3 **Purity** 99%	(Lot PR-31262)	10,043.3 µg/mL	+/- 58.3923 µg/mL +/- 293.0957 µg/mL +/- 355.6603 µg/mL		Gravimetric Unstressed Stressed
3	2,4,6-Tribromophenol **CAS #** 118-79-6 **Purity** 99%	(Lot MKCJ7664)	10,010.0 µg/mL	+/- 58.1990 µg/mL +/- 292.1253 µg/mL +/- 354.4829 µg/mL		Gravimetric Unstressed Stressed

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

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

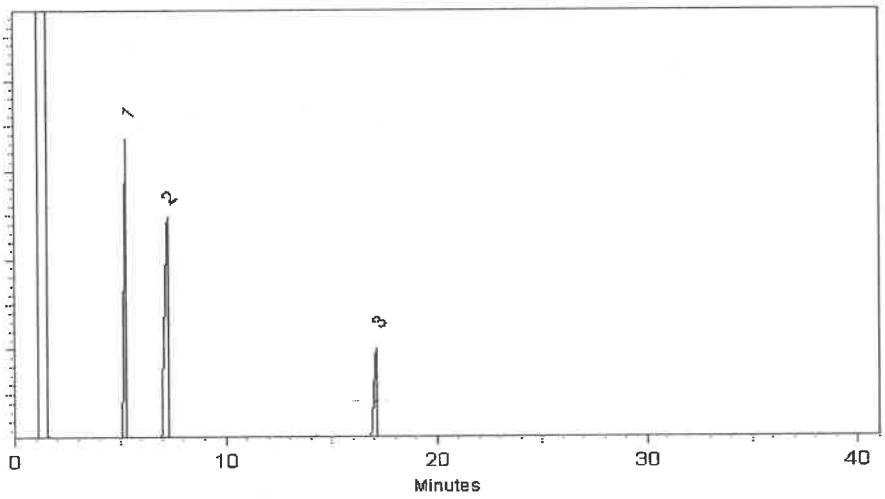
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Morgan Craighead - Mix Technician

Date Mixed: 02-Aug-2022 **Balance:** 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 05-Aug-2022

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.

Received by CG on 12/28/22 $10981 to $11010

Catalog No. : 31086 **Lot No.:** A0189418

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

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

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

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Nitrobenzene-d5 **CAS #** 4165-60-0 (Lot PR-29940A) **Purity** 99%	5,009.8 µg/mL	+/- 29.1271 µg/mL +/- 225.6421 µg/mL +/- 250.3778 µg/mL	Gravimetric Unstressed Stressed
2	2-Fluorobiphenyl **CAS #** 321-60-8 (Lot 00021384) **Purity** 99%	5,026.6 µg/mL	+/- 29.2250 µg/mL +/- 226.4003 µg/mL +/- 251.2191 µg/mL	Gravimetric Unstressed Stressed
3	p-Terphenyl-d14 **CAS #** 1718-51-0 (Lot PR-30504) **Purity** 99%	5,027.3 µg/mL	+/- 29.2289 µg/mL +/- 226.4304 µg/mL +/- 251.2524 µg/mL	Gravimetric Unstressed Stressed

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

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

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

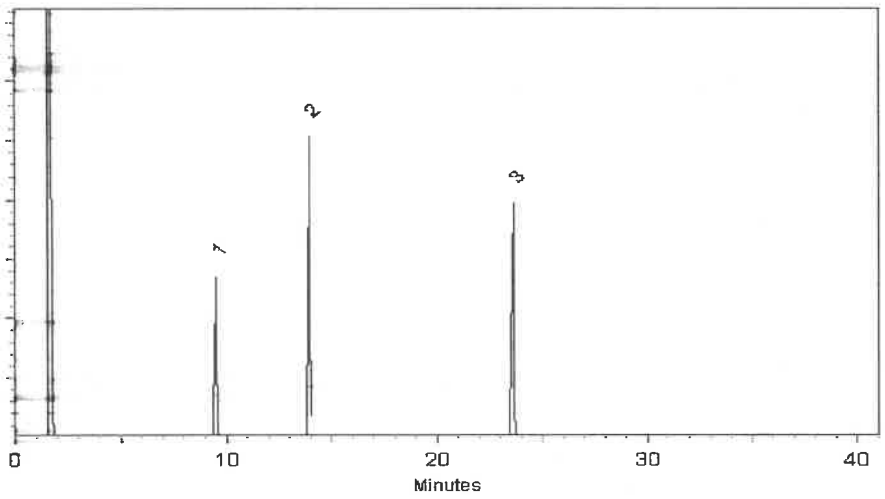
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

John Friedline - Operations Technician I

Date Mixed: 09-Sep-2022 **Balance:** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 13-Sep-2022

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.

Received on 01/13/23 by CG S11011 to S11015

Catalog No. : 555872 **Lot No.:** A0193449

Description : Custom Pentachlorophenol Standard

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

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

Expiration Date : January 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	Pentachlorophenol	87-86-5	RP221012	99%	25,050.0 µg/mL	+/- 778.6378

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

Russ Bookhamer - Operations Technician I **Date Mixed:** 11-Jan-2023 **Balance:** B442140311

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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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. : 555870 **Lot No.:** A0194698

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 : February 28, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	2,4-Dinitrophenol	51-28-5	DR221221RSR	99%	25,195.0 µg/mL

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

Russ Bookhamer - Operations Technician I

Date Mixed: 15-Feb-2023 **Balance:** B442140311

Manufactured under Restek's Registered Quality Certificate #FM 8

tified Reference Material Notes

:es:

n date valid for unopened ampul stored in compliance with the recommended conditions.

ıty, concentration, and expiration of the CRM are based on the unopened product being stored according to the ɜnded condition found in the storage field.

d/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, LC/MS, RI, and/or melting point.

ıds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A n factor is used to calculate the amount of compound necessary to achieve the desired concentration of the ɔmpound in solution.

isomeric compounds is reported as the sum of the isomers.

lues are rounded to the nearest whole number.

rtainty Value Notes:

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

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

ɜrage factor of 2, which gives a level of confidence of approximately 95%.

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

Notes:

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:

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ssolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely

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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. : 555870 **Lot No.:** A0194698

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 : February 28, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	2,4-Dinitrophenol	51-28-5	DR221221RSR	99%	25,195.0 µg/mL

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

Russ Bookhamer - Operations Technician I

Date Mixed: 15-Feb-2023 **Balance:** B442140311

Manufactured under Restek's Registered Quality Certificate #FM 8

tified Reference Material Notes

:es:

n date valid for unopened ampul stored in compliance with the recommended conditions.

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ıds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A n factor is used to calculate the amount of compound necessary to achieve the desired concentration of the ɔmpound in solution.

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

Notes:

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

:

the unopened product, when stored in compliance with the recommended conditions, is guaranteed through ion displayed on the product label and certificate. Contact Restek for additional opened product stability ɳ, with the knowledge/understanding that open product stability is subject to the specific handling and ntal conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with ɟards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ɜm. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, ıdes complete instructions.

ssolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

gravimetric

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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Catalog No. : 555869 **Lot No.:** A0194702

Description : Custom Hexachlorocyclopentadiene Standard

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

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

Expiration Date : February 28, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	Hexachlorocyclopentadiene	77-47-4	0012019	99%	25,008.0 µg/mL

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

Russ Bookhamer - Operations Technician I

Date Mixed: 15-Feb-2023 **Balance:** B442140311

Manufactured under Restek Registered Quality Certificate #FM

tified Reference Material Notes

:es:

n date valid for unopened ampul stored in compliance with the recommended conditions.

nty, concentration, and expiration of the CRM are based on the unopened product being stored according to the ended condition found in the storage field.

d/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, LC/MS, RI, and/or melting point.

nds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A n factor is used to calculate the amount of compound necessary to achieve the desired concentration of the mpound in solution.

isomeric compounds is reported as the sum of the isomers.

lues are rounded to the nearest whole number.

rtainty Value Notes:

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

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

erage factor of 2, which gives a level of confidence of approximately 95%.

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

Notes:

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

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Certificate #3222.02

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Received on 04/24/23 by CG ~~SP11277~~ S11277 to S11306

Catalog No. : 555223 **Lot No.:** A0197354

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 : April 30, 2025 **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	S230321RSR	99%	1,000.0 µg/mL	+/- 22.9569
2	Atrazine	1912-24-9	5FYWL	99%	1,001.0 µg/mL	+/- 22.9799
3	Benzidine	92-87-5	S221205RSR	99%	1,000.0 µg/mL	+/- 22.9569
4	epsilon-Caprolactam	105-60-2	I16X016	99%	1,001.0 µg/mL	+/- 22.9799

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

Matt Fragassi - Mix Technician

Date Mixed: 24-Apr-2023 **Balance:** 1122030677

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

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Matt Fragassi - Mix Technician

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

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

CERTIFICATE OF ANALYSIS

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

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

COMMENTS

QC: PhC Irma Belmares

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

RG-02-01, Ed. 3

Recd. by RB on 7/24/23 E3551

VWR®

Certificate of Analysis

Sodium Hydroxide (Pellets)

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

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

Pellets

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

Storage: Room Temperature

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

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

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

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

Additional Information

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

Product meets analytical specifications of the grades listed.

E 3657	E 3659
E 3654	E 3660

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 23K0962009
Manufactured Date: 2023-10-05
Expiration Date: 2025-01-03
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	3
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	10
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	< 5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

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

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC
Manufacturer source batch: MG23J05873

E3673

Ken Koehnlein
Sr. Manager, Quality Assurance

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 23K0962009
Manufactured Date: 2023-10-05
Expiration Date: 2025-01-03
Revision No.: 0

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Chloride (Cl)	≤ 10 ppm	< 5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

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

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC
Manufacturer source batch: MG23J05873

E 3678

Ken Koehnlein
Sr. Manager, Quality Assurance

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 23H1462005
Manufactured Date: 2023-07-26
Expiration Date: 2026-07-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	≥ 99.4 %	99.7 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	≤ 0.3	0.1
Titrable Base (µeq/g)	≤ 0.6	< 0.1
Water (H_2O)	≤ 0.5 %	0.3 %
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

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

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

RS
2/14.

E3699

Ken Koehnlein
Sr. Manager, Quality Assurance

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 24A1562007
Manufactured Date: 2023-12-14
Expiration Date: 2025-03-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	< 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: USA
Packaging Site: Phillipsburg Mfg Ctr & DC
Manufacturer source batch: MG23L14152

Rec. AS. 2/19/24

E3706

Ken Koehnlein
Sr. Manager, Quality Assurance

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 24A1562007
Manufactured Date: 2023-12-14
Expiration Date: 2025-03-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	< 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: USA
Packaging Site: Phillipsburg Mfg Ctr & DC
Manufacturer source batch: MG23L14152

E 3707

Ken Koehnlein
Sr. Manager, Quality Assurance

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

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO2)	≤ 2 ppm	< 2 ppm
Ammonium (NH_4)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO_3)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO_4)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

Test	Specification	Result
Trace Impurities - Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities - Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

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

James T Ethier

Jamie Ethier
Vice President Global Quality

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

S11440 → S114-12

Date Received: 07/17/23

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110094-02	503442	≤ -10 °C	Methylene Chloride	8/26/2024	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	5052 ± 122.61
2-fluorobiphenyl	321-60-8	99.7	8.7.1.1P	5005 ± 121.47
nitrobenzene-d_5	4165-60-0	100	7.9.2P	5040 ± 122.21
p-terphenyl-d_{14}	1718-51-0	99.6	9.12.9P	5027 ± 122

*Not a certified value

Certified By: Joanna Radu
Joanna Radu
Chemist

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

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

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. : 31206 **Lot No.:** A0196843

511499 & 511528 Y.P. 08/28/23

Description : SV Internal Standard Mix 2mg/ml

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

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

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

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

CERTIFIED VALUES

Elution-Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99%	2,010.0 µg/mL	+/- 90.5322
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,010.0 µg/mL	+/- 90.5316
3	Acenaphthene-d10	15067-26-2	PR-31822	99%	2,010.0 µg/mL	+/- 90.5334
4	Phenanthrene-d10	1517-22-2	PR-32303	99%	2,010.3 µg/mL	+/- 90.5466
5	Chrysene-d12	1719-03-5	PR-32210	99%	2,010.4 µg/mL	+/- 90.5490
6	Perylene-d12	1520-96-3	PR-33205	99%	2,010.2 µg/mL	+/- 90.5421

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

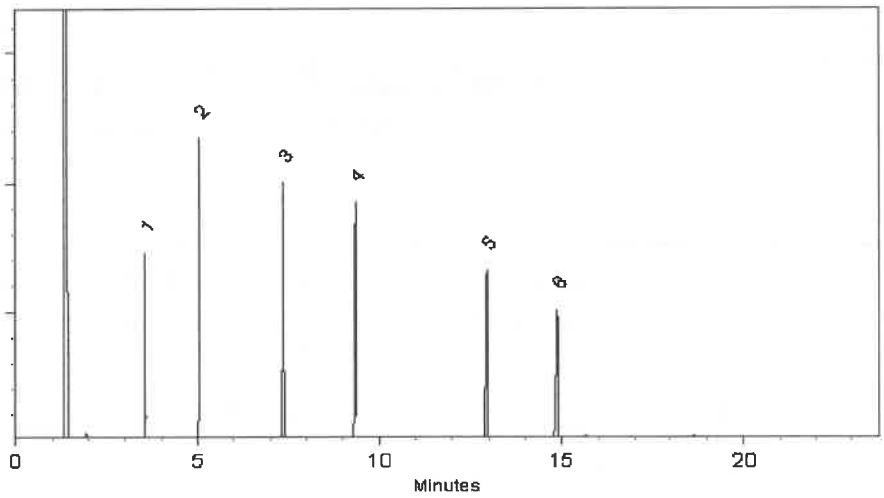
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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

Jess Hoy - Operations Tech I

Date Mixed: 10-Apr-2023 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Apr-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.

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

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.:** A0201940

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 : September 30, 2025 **Storage:** 10°C or colder

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

511539 ↓ 511568 Y.P. 091 191

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	S230321RSR	99%	1,001.0 µg/mL	+/- 22.9799
2	Atrazine	1912-24-9	5FYWL	99%	1,010.0 µg/mL	+/- 23.1865
3	Benzidine	92-87-5	S221205RSR	99%	1,008.0 µg/mL	+/- 23.1406
4	epsilon-Caprolactam	105-60-2	I16X016	99%	1,008.0 µg/mL	+/- 23.1406

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

Sam Moodler - Operations Tech I

REVIEWED
By Jennifer Pollino at 7:10 am, Sep 13, 2023

Date Mixed: 13-Sep-2023 **Balance:** B345965662

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.

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

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

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

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

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	MKCS1444	99%	1,003.5 µg/mL	+/- 29.497807
2	Acetophenone	98-86-2	STBH8205	99%	1,004.0 µg/mL	+/- 29.512504
3	Benzaldehyde	100-52-7	RD230209RSRA	99%	1,003.4 µg/mL	+/- 29.494867
4	Benzoic acid	65-85-0	MKCR2694	99%	1,002.2 µg/mL	+/- 29.459594
5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **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.
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CERTIFIED REFERENCE MATERIAL

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.

Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

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	MKCS1444	99%	1,003.5 µg/mL	+/- 29.497807
2	Acetophenone	98-86-2	STBH8205	99%	1,004.0 µg/mL	+/- 29.512504
3	Benzaldehyde	100-52-7	RD230209RSRA	99%	1,003.4 µg/mL	+/- 29.494867
4	Benzoic acid	65-85-0	MKCR2694	99%	1,002.2 µg/mL	+/- 29.459594
5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **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.
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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:

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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:

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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.

Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

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	MKCS1444	99%	1,003.5 µg/mL	+/- 29.497807
2	Acetophenone	98-86-2	STBH8205	99%	1,004.0 µg/mL	+/- 29.512504
3	Benzaldehyde	100-52-7	RD230209RSRA	99%	1,003.4 µg/mL	+/- 29.494867
4	Benzoic acid	65-85-0	MKCR2694	99%	1,002.2 µg/mL	+/- 29.459594
5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **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:

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- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

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

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

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

Manufacturing Notes:

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

Handling Notes:

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CERTIFIED REFERENCE MATERIAL

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.

Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

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	MKCS1444	99%	1,003.5 µg/mL	+/- 29.497807
2	Acetophenone	98-86-2	STBH8205	99%	1,004.0 µg/mL	+/- 29.512504
3	Benzaldehyde	100-52-7	RD230209RSRA	99%	1,003.4 µg/mL	+/- 29.494867
4	Benzoic acid	65-85-0	MKCR2694	99%	1,002.2 µg/mL	+/- 29.459594
5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **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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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
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4	Benzoic acid	65-85-0	MKCR2694	99%	1,002.2 µg/mL	+/- 29.459594
5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **Balance:** 1128360905

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

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Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
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KS
09/19/2

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	MKCS1444	99%	1,003.5 µg/mL	+/- 29.497807
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5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **Balance:** 1128360905

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

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Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

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	MKCS1444	99%	1,003.5 µg/mL	+/- 29.497807
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5	Biphenyl	92-52-4	MKCL6515	99%	1,002.1 µg/mL	+/- 29.456654

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

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **Balance:** 1128360905

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

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Catalog No. : 555224 **Lot No.:** A0201998

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 : September 30, 2025 **Storage:** 10°C or colder

Ship: Ambient

S11569
|
S11598

KS
09/19/2

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%

Penelope Riglin - Operations Tech I

Date Mixed: 14-Sep-2023 **Balance:** 1128360905

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

S11749 ↓ S11794 RC 11/30/23

CERTIFIED VALUES

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

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

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

Quality Confirmation Test

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

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

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

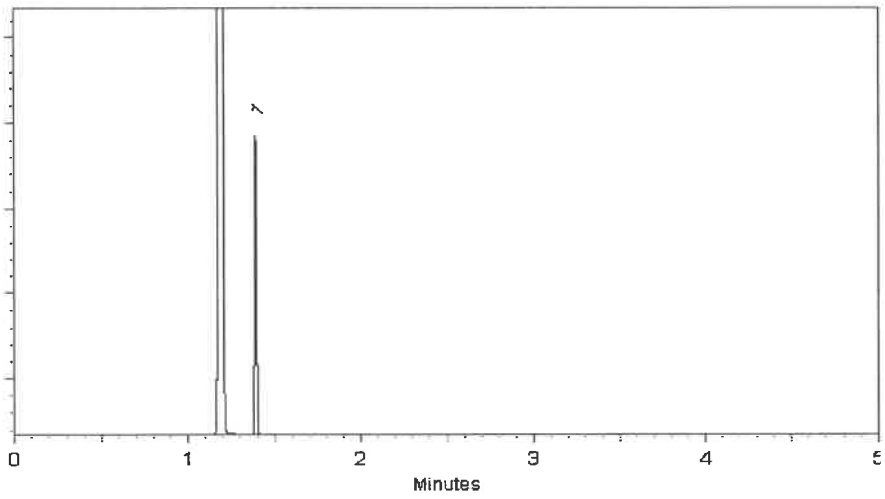
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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

Sam Moodler - Operations Tech I

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 31-Mar-2023

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

General Certified Reference Material Notes

Expiration Notes:

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

S11749 ↓ S11794 RC 11/30/23

CERTIFIED VALUES

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

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

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

Quality Confirmation Test

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

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

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

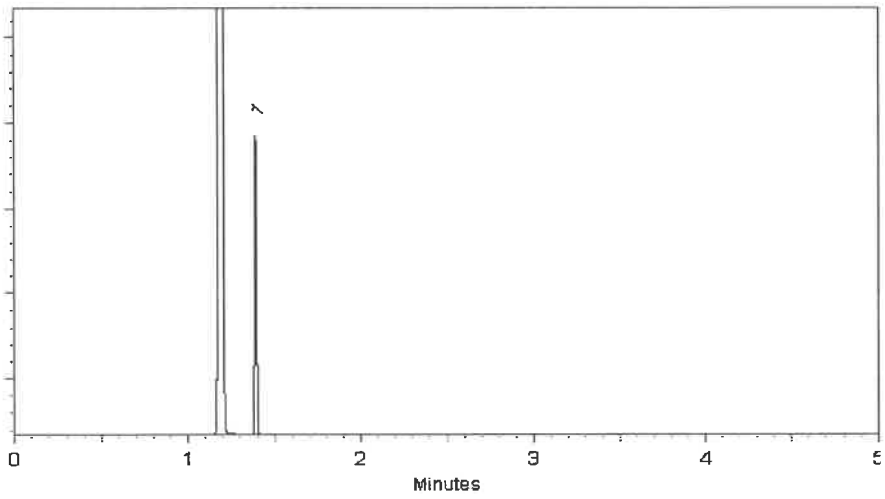
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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

Sam Moodler - Operations Tech I

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 31-Mar-2023

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

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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Purity Notes:

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

S11749 ↓ S11794 RC 11/30/23

CERTIFIED VALUES

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

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

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

Quality Confirmation Test

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

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

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

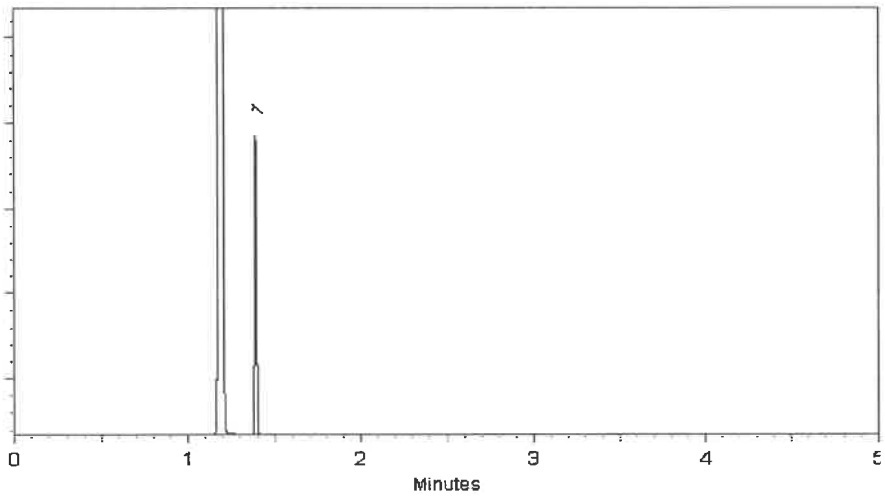
Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID

Split Vent:
100 ml/min.

Inj. Vol
1µl



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Sam Moodler - Operations Tech I

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 31-Mar-2023

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

General Certified Reference Material Notes

Expiration Notes:

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Manufacturing Notes:

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Description : 1,4-dioxane

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

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

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

Ship: Ambient

S11749 ↓ S11794 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
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Inj. Vol
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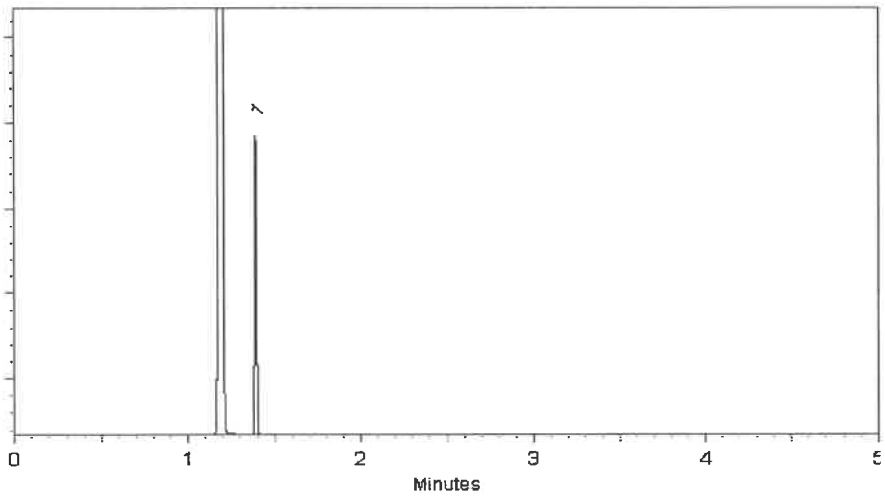

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Sam Moodler - Operations Tech I

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 31-Mar-2023

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

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S11749 ↓ S11794 RC 11/30/23

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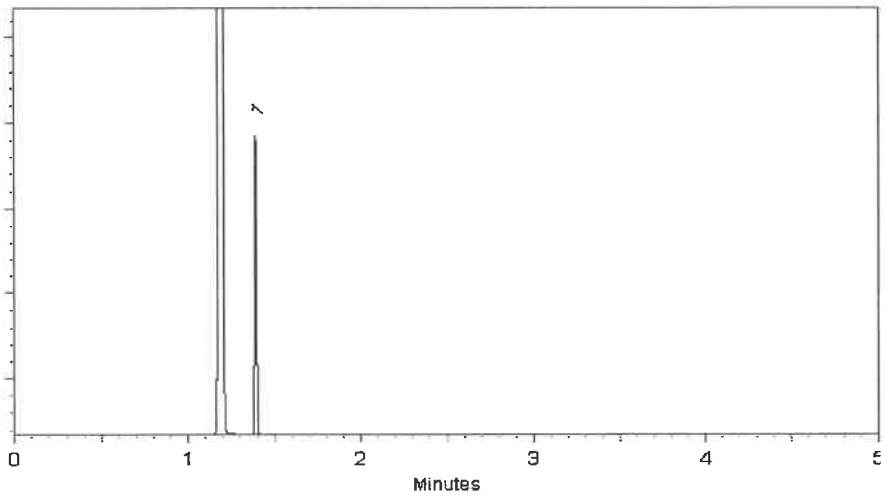

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Sam Moodler - Operations Tech I

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 31-Mar-2023

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Catalog No. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

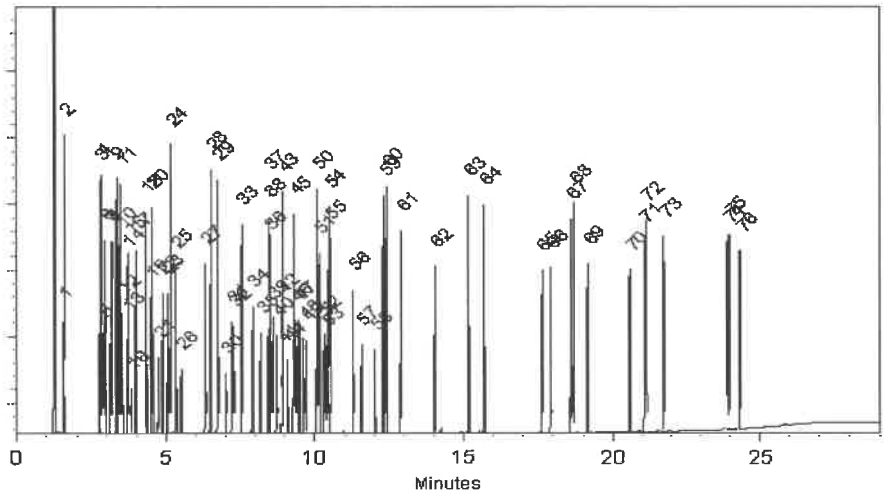
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

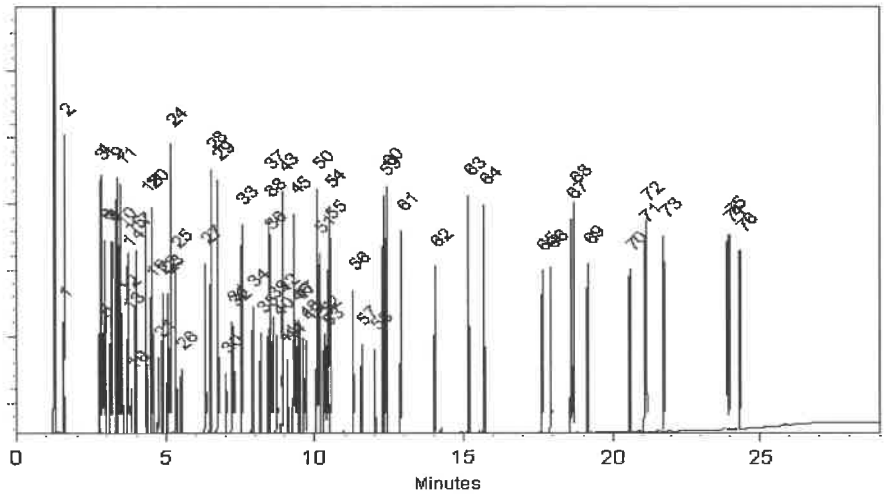
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

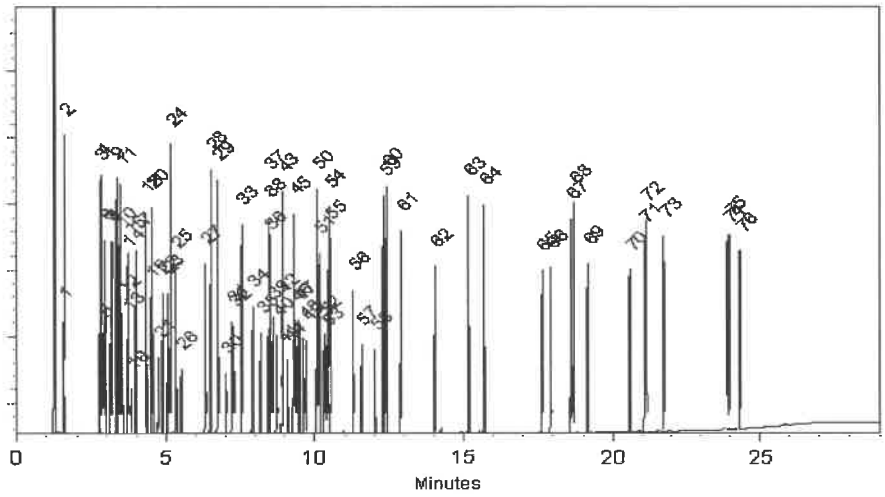
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

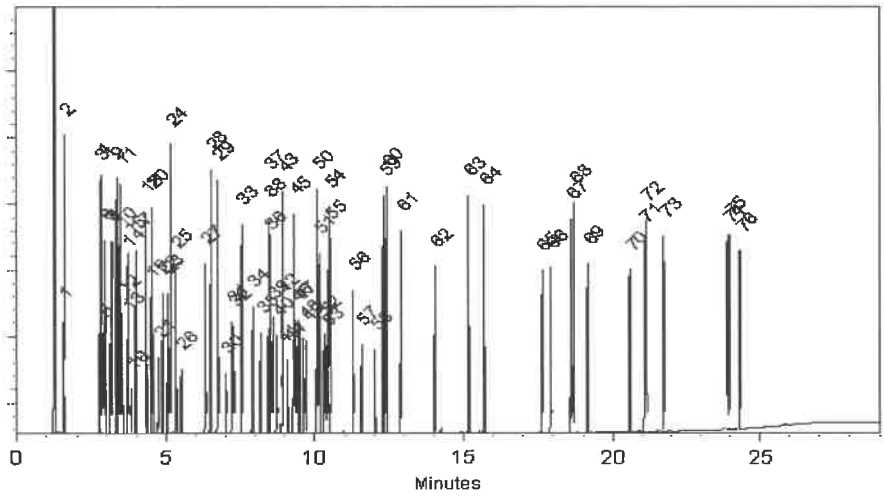
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

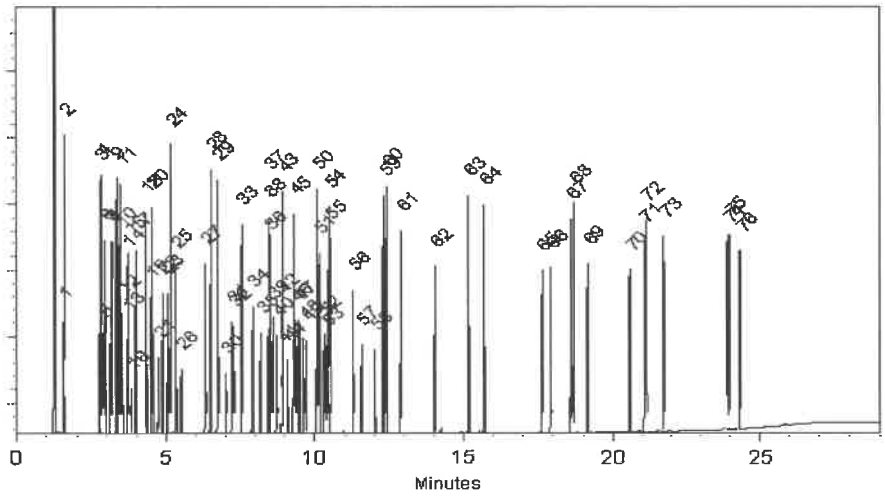
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

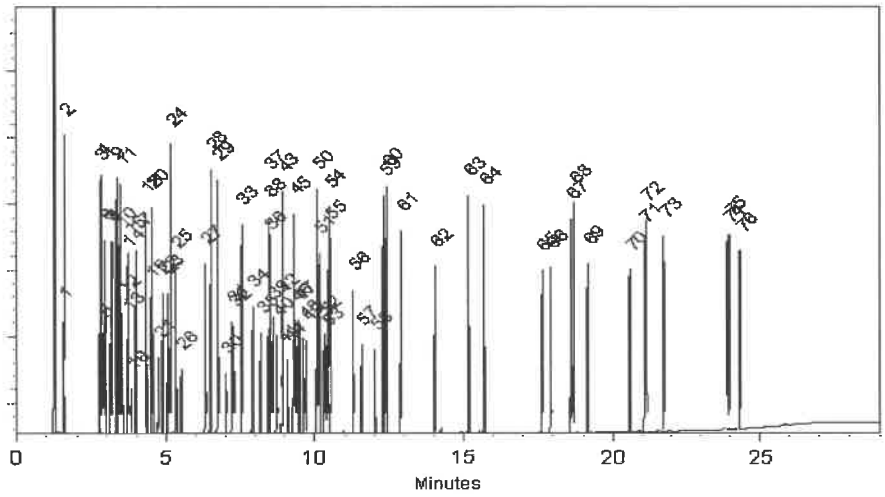
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

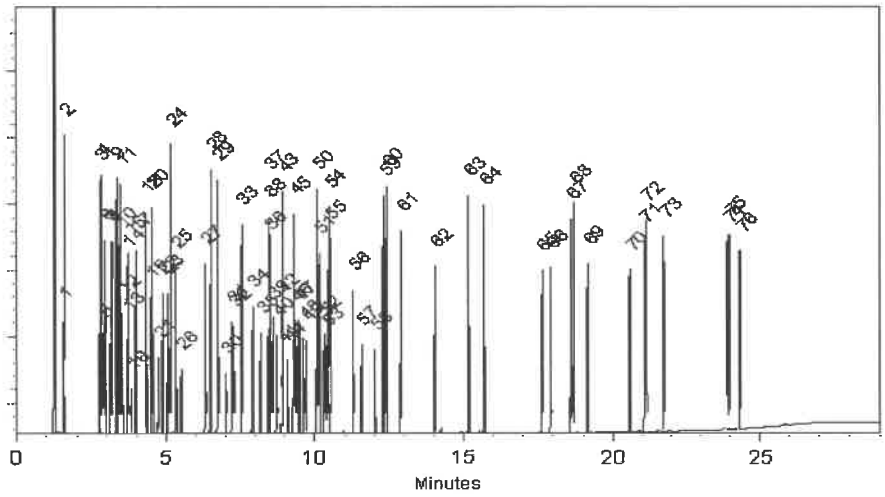
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31850 **Lot No.:** A0197982

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

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

Expiration Date : November 30, 2024 **Storage:** 0°C or colder

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

S11877 ↓ S11906 RC 11/30/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBN7324	99%	1,006.9 µg/mL	+/- 36.6352
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,007.4 µg/mL	+/- 36.6514
3	Phenol	108-95-2	MKCK1120	99%	1,005.3 µg/mL	+/- 36.5746
4	Aniline	62-53-3	X22F726	99%	1,004.6 µg/mL	+/- 36.5503
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,005.1 µg/mL	+/- 36.5665
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,007.1 µg/mL	+/- 36.6392
7	1,3-Dichlorobenzene	541-73-1	BCBZ7498	99%	1,006.7 µg/mL	+/- 36.6251
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,005.6 µg/mL	+/- 36.5867
9	Benzyl alcohol	100-51-6	SHBK5943	99%	1,005.4 µg/mL	+/- 36.5786
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,003.9 µg/mL	+/- 36.5240
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,002.3 µg/mL	+/- 36.4654
12	2,2'-oxybis(1-chloropropane)	108-60-1	230329JLM	99%	1,004.3 µg/mL	+/- 36.5402
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	502.1 µg/mL	+/- 18.2671
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	501.9 µg/mL	+/- 18.2631
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,004.0 µg/mL	+/- 36.5281
16	Hexachloroethane	67-72-1	QTORH	99%	1,006.1 µg/mL	+/- 36.6029
17	Nitrobenzene	98-95-3	10224044	99%	1,003.1 µg/mL	+/- 36.4957

18	Isophorone	78-59-1	MKCC9506	99%	1,003.8	µg/mL	+/- 36.5220
19	2-Nitrophenol	88-75-5	RP230509C	99%	1,005.8	µg/mL	+/- 36.5948
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,004.2	µg/mL	+/- 36.5341
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,006.3	µg/mL	+/- 36.6130
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,004.0	µg/mL	+/- 36.5281
23	1,2,4-Trichlorobenzene	120-82-1	SHBM0526	99%	1,007.1	µg/mL	+/- 36.6413
24	Naphthalene	91-20-3	MKCH0219	99%	1,006.7	µg/mL	+/- 36.6271
25	4-Chloroaniline	106-47-8	WXBC4601V	99%	1,005.4	µg/mL	+/- 36.5806
26	Hexachlorobutadiene	87-68-3	X05J	99%	1,006.4	µg/mL	+/- 36.6170
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,004.7	µg/mL	+/- 36.5543
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,002.3	µg/mL	+/- 36.4679
29	1-Methylnaphthalene	90-12-0	5234.00-3	99%	1,000.0	µg/mL	+/- 36.3825
30	Hexachlorocyclopentadiene	77-47-4	0012019	99%	1,006.1	µg/mL	+/- 36.6049
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.9	µg/mL	+/- 36.5604
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,006.5	µg/mL	+/- 36.6176
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,004.4	µg/mL	+/- 36.5422
34	2-Nitroaniline	88-74-4	RP230509A	99%	1,002.3	µg/mL	+/- 36.4654
35	1,4-Dinitrobenzene	100-25-4	RP230512A	99%	1,001.5	µg/mL	+/- 36.4371
36	Acenaphthylene	208-96-8	L10L	95%	1,003.4	µg/mL	+/- 36.5066
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.8	µg/mL	+/- 36.5564
38	Dimethylphthalate	131-11-3	10117699	99%	1,004.7	µg/mL	+/- 36.5543
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,006.8	µg/mL	+/- 36.6312
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,006.4	µg/mL	+/- 36.6170
41	Acenaphthene	83-32-9	MKCR7169	99%	1,000.0	µg/mL	+/- 36.3825
42	3-Nitroaniline	99-09-2	MKCH5457	99%	1,004.8	µg/mL	+/- 36.5584
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,005.8	µg/mL	+/- 36.5948
44	Dibenzofuran	132-64-9	MKCN1772	99%	1,004.3	µg/mL	+/- 36.5402
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,005.8	µg/mL	+/- 36.5928
46	4-Nitrophenol	100-02-7	RP230511A	99%	1,005.8	µg/mL	+/- 36.5948
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,005.9	µg/mL	+/- 36.5988
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230513	99%	1,004.9	µg/mL	+/- 36.5624
49	Fluorene	86-73-7	10236068	99%	1,005.4	µg/mL	+/- 36.5806
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCQ0984	99%	1,004.3	µg/mL	+/- 36.5382
51	Diethylphthalate	84-66-2	BCCD3396	99%	1,007.1	µg/mL	+/- 36.6392
52	4-Nitroaniline	100-01-6	RP220906	99%	1,005.3	µg/mL	+/- 36.5766
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230505JLM	99%	1,003.8	µg/mL	+/- 36.5200

54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.5	µg/mL	+/- 36.4735
55	Azobenzene	103-33-3	BCCG7339	98%	1,003.5	µg/mL	+/- 36.5106
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,005.6	µg/mL	+/- 36.5847
57	Hexachlorobenzene	118-74-1	14257500	99%	1,005.9	µg/mL	+/- 36.5988
58	Pentachlorophenol	87-86-5	RP230504	99%	1,004.2	µg/mL	+/- 36.5362
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,004.1	µg/mL	+/- 36.5321
60	Anthracene	120-12-7	MKCR0570	99%	1,008.3	µg/mL	+/- 36.6857
61	Carbazole	86-74-8	14351100	99%	1,005.1	µg/mL	+/- 36.5665
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,006.4	µg/mL	+/- 36.6170
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,003.7	µg/mL	+/- 36.5159
64	Pyrene	129-00-0	BCCG7845	99%	1,004.3	µg/mL	+/- 36.5382
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,003.4	µg/mL	+/- 36.5058
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,003.4	µg/mL	+/- 36.5079
67	Benz(a)anthracene	56-55-3	0012022BAA	97%	1,004.9	µg/mL	+/- 36.5624
68	Chrysene	218-01-9	RP230512B	99%	1,006.2	µg/mL	+/- 36.6089
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,003.8	µg/mL	+/- 36.5220
70	Di-n-octyl phthalate	117-84-0	13994100	99%	1,004.2	µg/mL	+/- 36.5341
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,008.4	µg/mL	+/- 36.6877
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,004.1	µg/mL	+/- 36.5301
73	Benzo(a)pyrene	50-32-8	J6IUE	99%	1,006.4	µg/mL	+/- 36.6170
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,002.0	µg/mL	+/- 36.4557
75	Dibenz(a,h)anthracene	53-70-3	ER032211-01	99%	1,006.1	µg/mL	+/- 36.6029
76	Benzo(g,h,i)perylene	191-24-2	RP230511B	98%	1,006.8	µg/mL	+/- 36.6295

* 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.)

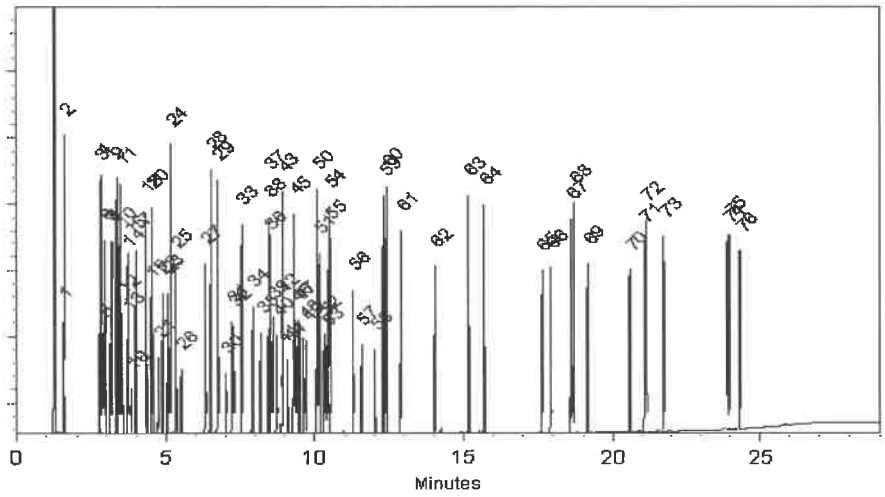
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 11-May-2023 **Balance Serial #** 1128353505

Christie Mills - Operations Tech II - ARM QC

Date Passed: 18-May-2023

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

chromatographic plus

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. : 31206 **Lot No.:** A0201320

S12013 ↓ S12042 RC 12/26/23

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 : July 31, 2029 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99%	2,017.0 µg/mL	+/- 90.8469
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,011.3 µg/mL	+/- 90.5917
3	Acenaphthene-d10	15067-26-2	PR-33507	99%	2,008.6 µg/mL	+/- 90.4685
4	Phenanthrene-d10	1517-22-2	PR-32303	99%	2,019.4 µg/mL	+/- 90.9550
5	Chrysene-d12	1719-03-5	PR-32210	99%	2,013.7 µg/mL	+/- 90.6968
6	Perylene-d12	1520-96-3	PR-33205	99%	2,012.7 µg/mL	+/- 90.6517

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

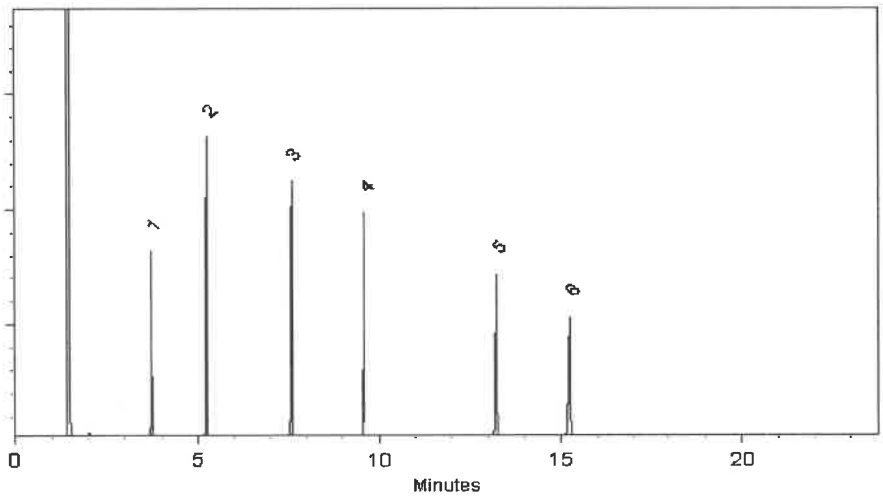
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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

Peter Robbins - Operations Technician I

Date Mixed: 23-Aug-2023 **Balance Serial #** B345965662

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 25-Aug-2023

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