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Prep Standard - Chemical Standard Summary

Order ID : O3645

Test : SVOCMS Group1

Prepbatch ID : PB154218,PB154258,

Sequence ID/Qc Batch ID: BF071923,BF072823,BF080123,BG080223,BM072823,BP072823,

Standard ID :
EP2316,EP2326,EP2349,EP2359,EP2361,SP6125,SP6216,SP6217,SP6228,SP6229,SP6230,SP6231,SP6232,SP6233,
SP6234,SP6235,SP6236,SP6237,SP6252,

Chemical ID :
E2865,E3382,E3412,E3464,E3515,E3518,E3519,E3521,E3523,E3534,E3543,M5211,S10245,S10310,S10315,S10327,S10330,S10393,S10405,S10571,S10614,S10615,S10616,S10617,S10618,S10619,S10620,S10621,S10622,S10793,S10952,S10953,S10954,S10955,S10956,S10957,S10958,S10959,S11037,S11039,S11040,S11042,S11052,S11124,S11125,S11126,S11127,S11135,S11174,S11176,S11177,S11178,S11179,S11198,S11201,S11207 10ul/1000ul sample,S11212 10ul/1000ul sample,S11213 10ul/1000ul sample,S11409,S9240,S9674,S9737,S9827,S9903,S9921,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	EP2316	03/29/2023	09/29/2023	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 03/29/2023

FROM 1000.00000ml of M5211 = 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	EP2326	04/19/2023	08/04/2023	Rajesh Parikh	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 04/19/2023

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

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2017	1:1 ACETONE/METHYLENE CHLORIDE	EP2349	06/17/2023	12/13/2023	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 06/17/2023

FROM 8000.00000ml of E3518 + 8000.00000ml of E3519 = Final Quantity: 16000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2359	07/11/2023	10/23/2023	Sohil Jodhani	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 07/11/2023

FROM 4000.00000gram of E3412 = Final Quantity: 4000.000 gram

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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	EP2361	07/17/2023	10/23/2023	Rajesh Parikh	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 07/17/2023

FROM 4000.00000gram of E3412 = 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	SP6125	02/15/2023	08/02/2023	Christian Giraldo	None	None	mohammad ahmed 02/17/2023

FROM 1.00000ml of S10245 + 19.00000ml of E3464 = 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)	SP6216	06/06/2023	09/27/2023	Yogesh Patel	None	None	Jagrut Upadhyay 06/13/2023

FROM 0.04000ml of S9737 + 0.08000ml of S10614 + 0.10000ml of S10571 + 0.20000ml of S11037 + 0.20000ml of S11124 + 0.20000ml of S11174 + 1.18000ml of E3515 = 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	SP6217	06/06/2023	09/27/2023	Yogesh Patel	None	None	Jagrut Upadhyay 06/13/2023

FROM 0.01000ml of S11198 + 0.60000ml of E3515 + 0.40000ml of SP6216 = 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	SP6228	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.26700ml of S9240 + 0.40000ml of S11409 + 0.50000ml of S9921 + 1.00000ml of S10310 + 1.00000ml of S10315 + 1.00000ml of S10327 + 1.00000ml of S10330 + 1.00000ml of S10793 + 3.83300ml of E3521 = 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	SP6229	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.20000ml of E3521 + 0.80000ml of SP6228 = 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	SP6230	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.40000ml of E3521 + 0.60000ml of SP6228 = 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	SP6231	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.50000ml of E3521 + 0.50000ml of SP6228 = 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	SP6232	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.60000ml of E3521 + 0.40000ml of SP6228 = 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	SP6233	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.80000ml of E3521 + 0.20000ml of SP6228 = 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	SP6234	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.90000ml of E3521 + 0.10000ml of SP6228 = 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	SP6235	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.95000ml of E3521 + 0.05000ml of SP6228 = 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	SP6236	06/21/2023	11/19/2023	Jagrut Upadhyay	None	None	mohammad ahmed 06/22/2023

FROM 0.01000ml of S11201 + 0.50000ml of E3521 + 0.50000ml of SP6235 = Final Quantity: 1.010 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
171	8270/625 Spike Solution, 50/100 PPM	SP6237	06/24/2023	08/07/2023	Yogesh Patel	None	None	mohammad ahmed 07/07/2023

FROM 0.20000ml of S10393 + 0.20000ml of S10405 + 0.20000ml of S11135 + 0.20000ml of S9674 + 0.20000ml of S9903 + 1.00000ml of S11052 + 1.25000ml of S11176 + 1.25000ml of S11177 + 1.25000ml of S11178 + 1.25000ml of S11179 + 1.50000ml of S11042 + 1.50000ml of S11127 + 1.50000ml of S9827 + 1.75000ml of S11039 + 1.75000ml of S11040 + 1.75000ml of S11125 + 1.75000ml of S11126 + 81.50000ml of E3523 = 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
19	8270/CLP Surrogate Solution, 100 PPM BN/150 PPM ACID	SP6252	06/29/2023	12/29/2023	Yogesh Patel	None	None	mohammad ahmed 07/07/2023

FROM 1.50000ml of S10952 + 1.50000ml of S10953 + 1930.00000ml of E3534 + 2.00000ml of S10954 + 5.00000ml of S10615 + 5.00000ml of S10616 + 5.00000ml of S10617 + 5.00000ml of S10618 + 5.00000ml of S10619 + 5.00000ml of S10620 + 5.00000ml of S10621 + 5.00000ml of S10622 + 5.00000ml of S10955 + 5.00000ml of S10956 + 5.00000ml of S10957 + 5.00000ml of S10958 + 5.00000ml of S10959 = Final Quantity: 2000.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3382-05 / Sand, Purified (cs/4x2.5kg)	0000243821	12/31/2024	04/30/2020 / RAJESH	04/28/2020 / RAJESH	E2865

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	220601-B017657	12/04/2023	08/04/2022 / Rajesh	08/03/2022 / Rajesh	E3382

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1	139404	10/23/2023	10/18/2022 / Rajesh	10/13/2022 / Rajesh	E3412

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	22L0562002	08/02/2023	02/02/2023 / Rajesh	01/24/2023 / Rajesh	E3464

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)	23C1362018	12/01/2023	06/01/2023 / Rajesh	05/17/2023 / Rajesh	E3515

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)	23E0962014	12/13/2023	06/13/2023 / Rajesh	06/07/2023 / Rajesh	E3518

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	22E1562001	12/16/2023	06/17/2023 / Rajesh	06/15/2023 / Rajesh	E3519

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)	23E0962014	12/21/2023	06/21/2023 / Rajesh	06/07/2023 / Rajesh	E3521

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)	22L2862006	12/24/2023	06/24/2023 / Rajesh	06/21/2023 / Rajesh	E3523

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)	12/18/2025	12/29/2023	06/29/2023 / Rajesh	06/29/2023 / Rajesh	E3534

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)	23F1262016	01/12/2024	07/12/2023 / Rajesh	07/12/2023 / Rajesh	E3543

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)	22D0862014	01/20/2025	08/22/2022 /	04/26/2022 / mohan	M5211

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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	08/15/2023	02/15/2023 / Christian	03/18/2022 / Christian	S10245

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	12/21/2023	06/21/2023 / Jagrut	04/22/2022 / Christian	S10310

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	12/21/2023	06/21/2023 / Jagrut	04/22/2022 / Christian	S10315

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	12/21/2023	06/21/2023 / Jagrut	04/22/2022 / Christian	S10327

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	12/21/2023	06/21/2023 / Jagrut	04/22/2022 / Christian	S10330

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	12/24/2023	06/24/2023 / yogesh	05/18/2022 / Christian	S10393

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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]	A0184983	09/28/2023	03/28/2023 / Christian	05/18/2022 / Christian	S10405

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0179300	11/15/2023	05/15/2023 / Christian	07/05/2022 / Christian	S10571

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	11/05/2023	05/05/2023 / Christian	08/16/2022 / Christian	S10614

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10615

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10616

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10617

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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	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10618

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10619

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10620

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10621

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31086 / Base Neutral Surrogate 5000ug/ml,CH2Cl2,5ml	A0186198	12/29/2023	06/29/2023 / yogesh	08/16/2022 / Christian	S10622

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)	414126	12/21/2023	06/21/2023 / Jagrut	09/13/2022 / Christian	S10793

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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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10952

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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10953

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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10954

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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10955

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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10956

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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10957

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ampul	A0188108	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10958

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	12/29/2023	06/29/2023 / yogesh	12/28/2022 / Christian	S10959

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]	A0185274	11/03/2023	05/03/2023 / Christian	02/06/2023 / Christian	S11037

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]	A0185274	12/24/2023	06/24/2023 / yogesh	02/06/2023 / Christian	S11039

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]	A0185274	12/24/2023	06/24/2023 / yogesh	02/06/2023 / Christian	S11040

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]	A0185274	12/24/2023	06/24/2023 / yogesh	02/06/2023 / Christian	S11042

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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	A0189157	12/24/2023	06/24/2023 / yogesh	02/06/2023 / Christian	S11052

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]	A0194662	11/22/2023	05/22/2023 / Christian	02/20/2023 / Christian	S11124

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]	A0194662	12/24/2023	06/24/2023 / yogesh	02/20/2023 / Christian	S11125

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]	A0194662	12/24/2023	06/24/2023 / yogesh	02/20/2023 / Christian	S11126

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]	A0194662	12/24/2023	06/24/2023 / yogesh	02/20/2023 / Christian	S11127

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	11/03/2023	05/03/2023 / Christian	02/20/2023 / Christian	S11135

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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]	A0194799	11/03/2023	05/03/2023 / Christian	03/06/2023 / Christian	S11174

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]	A0194799	12/24/2023	06/24/2023 / yogesh	03/06/2023 / Christian	S11176

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]	A0194799	12/24/2023	06/24/2023 / yogesh	03/06/2023 / Christian	S11177

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]	A0194799	12/24/2023	06/24/2023 / yogesh	03/06/2023 / Christian	S11178

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]	A0194799	12/24/2023	06/24/2023 / yogesh	03/06/2023 / Christian	S11179

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	A0191993	11/30/2023	05/30/2023 / Christian	04/07/2023 / Christian	S11198

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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	A0191993	12/20/2023	06/20/2023 / Jagrut	04/07/2023 / Christian	S11201

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	12/21/2023	06/21/2023 / Jagrut	06/07/2023 / Yogesh	S11409

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	11/19/2023	05/19/2023 / Christian	02/25/2021 / Christian	S9240

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]	A0175226	09/28/2023	03/28/2023 / Christian	08/12/2021 / Christian	S9674

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31087 / Acid Surrogate 10,000ug/ml,methanol,5ml/ampul	A0173743	09/27/2023	03/27/2023 / Christian	08/25/2021 / Christian	S9737

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	A0169482	08/07/2023	02/07/2023 / Jagrut	08/26/2021 / Christian	S9827

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555872 / Custom Standard, pentachlorophenol Std [CS 5328-5]	A0175414	09/28/2023	03/28/2023 / Christian	08/12/2021 / Christian	S9903

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	12/21/2023	06/21/2023 / Jagrut	09/03/2021 / Christian	S9921

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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Certified By: _____
Shane Overcash
Chemist

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Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-110816-01	414126	≤ -10 °C	Methylene Chloride	3/30/2025	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	1000 ± 9.36
benzidine	92-87-5	99	124.18.6.1P	1010 ± 9.42
caprolactam	105-60-2	99.9	271.1.6P	1004 ± 9.4

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S10790
to
S10793

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Certified By: _____
Jacob Mulloy
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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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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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

*Not a certified value

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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

*Not a certified value

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

Certified By: Thomas C Tipton

Clint Tipton
Chemist

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

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

*Not a certified value

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

Certified By: Thomas C Tipton

Clint Tipton
Chemist

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

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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 08/26/21 by CG S9819 to S9828

Catalog No. : 31853 **Lot No.:** A0169482

Description : 1,4-dioxane

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

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

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

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane **CAS #** 123-91-1 (Lot SHBL6661) **Purity** 99%	2,001.0 µg/mL	+/- 11.7430 µg/mL +/- 42.8714 µg/mL +/- 44.1160 µg/mL		Gravimetric Unstressed Stressed

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

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

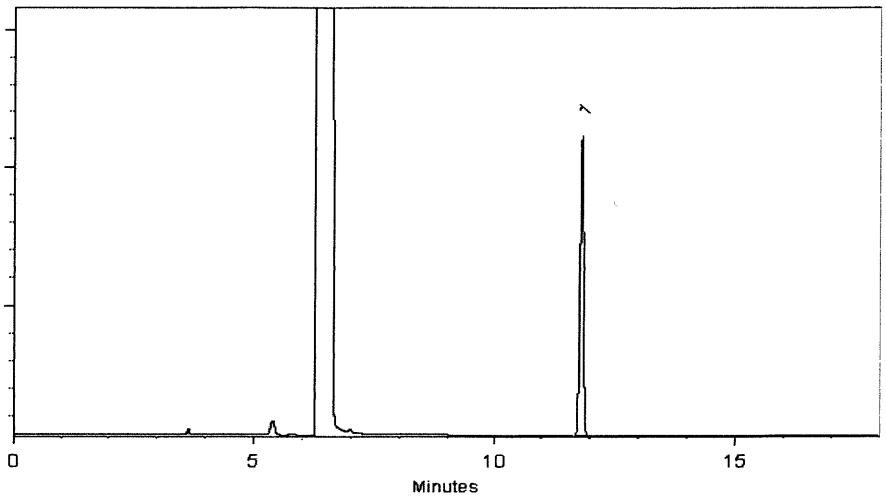
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

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

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



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

Sam Moodler - Operations Tech I

Date Mixed: 25-Feb-2021 **Balance:** B442140311

Marlina Cowan - Operations Tech I

Date Passed: 01-Mar-2021

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

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

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

Description : Acid Surrogate Mix (4/89 SOW)

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

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

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

Ship: Ambient

CERTIFIED VALUES

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

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

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

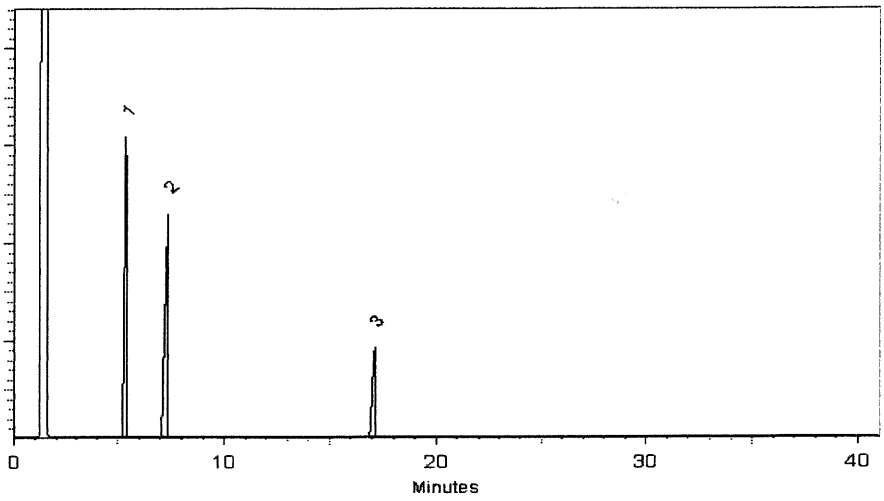
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Aurelia Confer - Operations Tech I

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

Marlina Cowan - Operations Tech I

Date Passed: 25-Jun-2021

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Received on 08/12/21 by CG S 9671 to S 9675

Catalog No. : 555869 **Lot No.:** A0175226

Description : Custom Hexachlorocyclopentadiene Standard

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

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

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

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Hexachlorocyclopentadiene	25,032.0 µg/mL	+/- 231.6508 µg/mL	Gravimetric
	CAS # 77-47-4 (Lot 0012019)		+/- 1,251.3257 µg/mL	Unstressed
	Purity 99%		+/- 1,281.8032 µg/mL	Stressed

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

Lane Kibe - Mix Technician **Date Mixed:** 09-Aug-2021 **Balance:** B345965662

Manufactured under Restek's ISO 9001:2015
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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 on 08/12/21 by CG S9899 to S9903

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

Description : Custom Pentachlorophenol Standard

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

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

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

Ship: Ambient

CERTIFIED VALUES

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

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

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

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

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

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

Description : 1,4-dioxane

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

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

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

Ship: Ambient

CERTIFIED VALUES

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

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

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

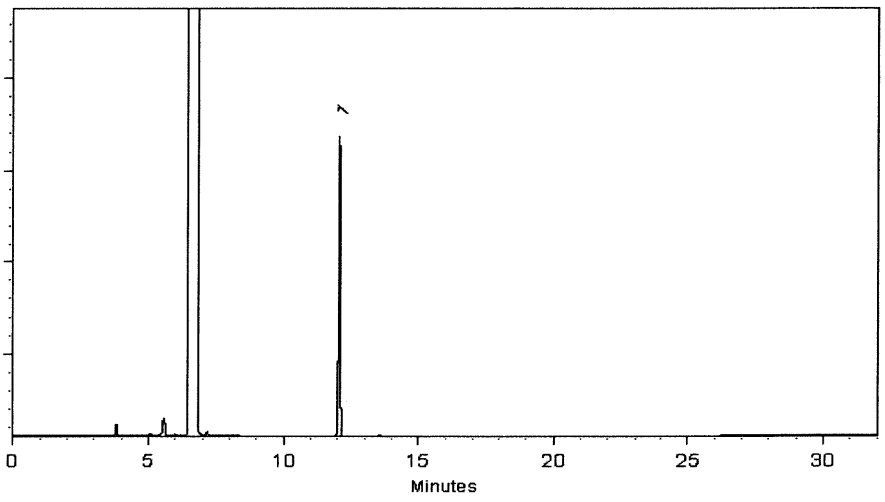
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

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

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



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

Ashley Frantz - Quoting Technician

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

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 10-Dec-2021

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

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

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

Description : GC/MS Tuning Mixture

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

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

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

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

CERTIFIED VALUES

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

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

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

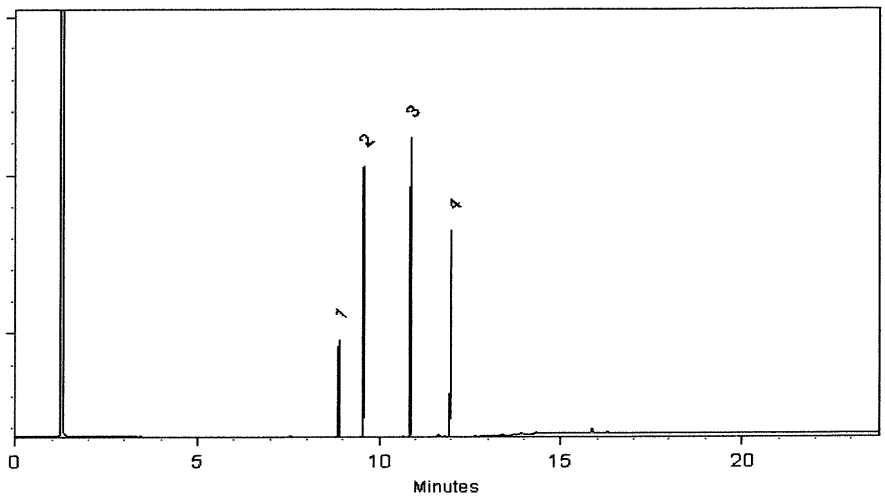
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Morgan Craighead - Mix Technician

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

Merlina Cowan - Operations Tech I

Date Passed: 10-Mar-2022

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

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Received on 05/18/22 by CG
S10403 to S10407

Catalog No. : 555868 **Lot No.:** A0184983

Description : Custom Benzidine Standard

Custom Benzidine 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

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

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Benzidine	25,024.0 µg/mL	+/- 231.5768	µg/mL	Gravimetric
	CAS # 92-87-5 (Lot 211228JLM)		+/- 349.2045	µg/mL	Unstressed
	Purity 99%		+/- 509.0253	µg/mL	Stressed

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

Cathleen Soltis
Cathleen Soltis - Mix Technician

Date Mixed: 05-May-2022 **Balance:** B442140311

Manufactured under Restek's ISO 9001:2015
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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.

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Received by CG on 02/06/23
S 11016 to S 11045

Catalog No. : 31850 **Lot No.:** A0185274

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2023 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pyridine **CAS #** 110-86-1 **Purity** 99%	(Lot SHBL0433)	1,001.1 µg/mL	+/- 5.8205 µg/mL +/- 30.2818 µg/mL +/- 30.2818 µg/mL		Gravimetric Unstressed Stressed
2	N-Nitrosodimethylamine **CAS #** 62-75-9 **Purity** 99%	(Lot 220520JLM)	1,001.1 µg/mL	+/- 5.8202 µg/mL +/- 30.2801 µg/mL +/- 30.2801 µg/mL		Gravimetric Unstressed Stressed
3	Phenol **CAS #** 108-95-2 **Purity** 99%	(Lot MKCK1120)	1,000.8 µg/mL	+/- 5.8189 µg/mL +/- 30.2734 µg/mL +/- 30.2734 µg/mL		Gravimetric Unstressed Stressed
4	Aniline **CAS #** 62-53-3 **Purity** 99%	(Lot X22F726)	1,001.2 µg/mL	+/- 5.8212 µg/mL +/- 30.2852 µg/mL +/- 30.2852 µg/mL		Gravimetric Unstressed Stressed
5	Bis(2-chloroethyl)ether **CAS #** 111-44-4 **Purity** 99%	(Lot SHBL6942)	1,000.8 µg/mL	+/- 5.8186 µg/mL +/- 30.2717 µg/mL +/- 30.2717 µg/mL		Gravimetric Unstressed Stressed
6	2-Chlorophenol **CAS #** 95-57-8 **Purity** 99%	(Lot STBH7290)	1,002.3 µg/mL	+/- 5.8273 µg/mL +/- 30.3171 µg/mL +/- 30.3171 µg/mL		Gravimetric Unstressed Stressed
7	1,3-Dichlorobenzene **CAS #** 541-73-1 **Purity** 99%	(Lot BCBZ7498)	1,001.2 µg/mL	+/- 5.8209 µg/mL +/- 30.2835 µg/mL +/- 30.2835 µg/mL		Gravimetric Unstressed Stressed

8	1,4-Dichlorobenzene **CAS #** 106-46-7 **Purity** 99%	(Lot MKBS4401V)	1,001.0	µg/mL	+/- 5.8199 +/- 30.2784 +/- 30.2784	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Benzyl alcohol **CAS #** 100-51-6 **Purity** 99%	(Lot SHBK5943)	1,000.6	µg/mL	+/- 5.8176 +/- 30.2667 +/- 30.2667	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	1,2-Dichlorobenzene **CAS #** 95-50-1 **Purity** 99%	(Lot SHBN3835)	1,002.1	µg/mL	+/- 5.8260 +/- 30.3104 +/- 30.3104	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	2-Methylphenol (o-cresol) **CAS #** 95-48-7 **Purity** 99%	(Lot SHBM5003)	1,000.4	µg/mL	+/- 5.8167 +/- 30.2616 +/- 30.2616	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	2,2'-oxybis(1-chloropropane) **CAS #** 108-60-1 **Purity** 99%	(Lot 12549200)	1,000.8	µg/mL	+/- 5.8186 +/- 30.2717 +/- 30.2717	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	3-Methylphenol (m-cresol) **CAS #** 108-39-4 **Purity** 99%	(Lot STBJ0710)	500.4	µg/mL	+/- 2.9164 +/- 15.1388 +/- 15.1388	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	4-Methylphenol (p-cresol) **CAS #** 106-44-5 **Purity** 99%	(Lot SHBN1151)	500.1	µg/mL	+/- 2.9144 +/- 15.1288 +/- 15.1288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	N-Nitroso-di-n-propylamine **CAS #** 621-64-7 **Purity** 99%	(Lot 2D5VJ)	1,000.2	µg/mL	+/- 5.8151 +/- 30.2532 +/- 30.2532	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	Hexachloroethane **CAS #** 67-72-1 **Purity** 99%	(Lot QTORH)	1,001.7	µg/mL	+/- 5.8238 +/- 30.2986 +/- 30.2986	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Nitrobenzene **CAS #** 98-95-3 **Purity** 99%	(Lot 10224044)	1,000.3	µg/mL	+/- 5.8157 +/- 30.2566 +/- 30.2566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Isophorone **CAS #** 78-59-1 **Purity** 99%	(Lot MKCC9506)	1,002.2	µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	2-Nitrophenol **CAS #** 88-75-5 **Purity** 99%	(Lot BCCB2407)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	2,4-Dimethylphenol **CAS #** 105-67-9 **Purity** 99%	(Lot XW5GK)	1,002.6	µg/mL	+/- 5.8293 +/- 30.3272 +/- 30.3272	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Bis(2-chloroethoxy)methane **CAS #** 111-91-1 **Purity** 99%	(Lot 12665000)	1,000.9	µg/mL	+/- 5.8193 +/- 30.2751 +/- 30.2751	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2,4-Dichlorophenol **CAS #** 120-83-2 **Purity** 99%	(Lot BCBZ6787)	1,001.5	µg/mL	+/- 5.8228 +/- 30.2936 +/- 30.2936	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,2,4-Trichlorobenzene **CAS #** 120-82-1 **Purity** 99%	(Lot SHBM0526)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Naphthalene **CAS #** 91-20-3 **Purity** 99%	(Lot MKCH0219)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	4-Chloroaniline **CAS #** 106-47-8 **Purity** 99%	(Lot BCBJ1580V)	1,000.1 µg/mL	+/- 5.8144 +/- 30.2499 +/- 30.2499	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	Hexachlorobutadiene **CAS #** 87-68-3 **Purity** 99%	(Lot X05J)	1,002.2 µg/mL	+/- 5.8270 +/- 30.3154 +/- 30.3154	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	4-Chloro-3-methylphenol **CAS #** 59-50-7 **Purity** 99%	(Lot BCCD4461)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	2-Methylnaphthalene **CAS #** 91-57-6 **Purity** 96%	(Lot STBK0259)	1,002.2 µg/mL	+/- 5.8268 +/- 30.3143 +/- 30.3143	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	1-Methylnaphthalene **CAS #** 90-12-0 **Purity** 99%	(Lot 5234.00-3)	1,000.0 µg/mL	+/- 5.8141 +/- 30.2482 +/- 30.2482	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	Hexachlorocyclopentadiene **CAS #** 77-47-4 **Purity** 99%	(Lot 0012020)	1,000.7 µg/mL	+/- 5.8180 +/- 30.2684 +/- 30.2684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	2,4,6-Trichlorophenol **CAS #** 88-06-2 **Purity** 99%	(Lot STBJ5914)	1,002.9 µg/mL	+/- 5.8309 +/- 30.3356 +/- 30.3356	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	2,4,5-Trichlorophenol **CAS #** 95-95-4 **Purity** 98%	(Lot FHN01)	1,001.9 µg/mL	+/- 5.8254 +/- 30.3069 +/- 30.3069	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	2-Chloronaphthalene **CAS #** 91-58-7 **Purity** 99%	(Lot TWYRD)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	2-Nitroaniline **CAS #** 88-74-4 **Purity** 99%	(Lot MKCJ8895)	1,001.6 µg/mL	+/- 5.8235 +/- 30.2969 +/- 30.2969	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	1,4-Dinitrobenzene **CAS #** 100-25-4 **Purity** 99%	(Lot STBF8844V)	1,002.2 µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	Acenaphthylene **CAS #** 208-96-8 **Purity** 98%	(Lot L20W)	1,000.0 µg/mL	+/- 5.8143 +/- 30.2493 +/- 30.2493	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,3-Dinitrobenzene **CAS #** 99-65-0 **Purity** 99%	(Lot 1-DXX-24-1)	1,002.7 µg/mL	+/- 5.8296 +/- 30.3289 +/- 30.3289	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	Dimethylphthalate **CAS #** 131-11-3 **Purity** 99%	(Lot 10117699)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99%	(Lot BCBB8606)	1,001.3 µg/mL	+/- 5.8218 +/- 30.2885 +/- 30.2885	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	1,2-Dinitrobenzene		1,000.2	µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 528-29-0	(Lot MKCH6067)			+/-	30.2532	µg/mL	Unstressed
	Purity 99%				+/-	30.2532	µg/mL	Stressed
41	Acenaphthene		1,001.9	µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 83-32-9	(Lot MKCQ4733)			+/-	30.3053	µg/mL	Unstressed
	Purity 99%				+/-	30.3053	µg/mL	Stressed
42	3-Nitroaniline		1,000.7	µg/mL	+/-	5.8183	µg/mL	Gravimetric
	CAS # 99-09-2	(Lot MKCH5457)			+/-	30.2700	µg/mL	Unstressed
	Purity 99%				+/-	30.2700	µg/mL	Stressed
43	2,4-Dinitrophenol		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 51-28-5	(Lot STBH7564)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
44	Dibenzofuran		1,001.7	µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 132-64-9	(Lot MKCN1772)			+/-	30.3003	µg/mL	Unstressed
	Purity 99%				+/-	30.3003	µg/mL	Stressed
45	2,4-Dinitrotoluene		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
46	4-Nitrophenol		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 100-02-7	(Lot MKCF6111)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
47	2,3,4,6-Tetrachlorophenol		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 58-90-2	(Lot PR-30126)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed
48	2,3,5,6-Tetrachlorophenol		1,000.3	µg/mL	+/-	5.8157	µg/mL	Gravimetric
	CAS # 935-95-5	(Lot 012016)			+/-	30.2566	µg/mL	Unstressed
	Purity 99%				+/-	30.2566	µg/mL	Stressed
49	Fluorene		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 86-73-7	(Lot 10236068)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
50	4-Chlorophenyl phenyl ether		1,001.7	µg/mL	+/-	5.8238	µg/mL	Gravimetric
	CAS # 7005-72-3	(Lot MKCQ0984)			+/-	30.2986	µg/mL	Unstressed
	Purity 99%				+/-	30.2986	µg/mL	Stressed
51	Diethylphthalate		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 84-66-2	(Lot BCCD3396)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
52	4-Nitroaniline		1,001.8	µg/mL	+/-	5.8247	µg/mL	Gravimetric
	CAS # 100-01-6	(Lot RP220302)			+/-	30.3036	µg/mL	Unstressed
	Purity 99%				+/-	30.3036	µg/mL	Stressed
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 534-52-1	(Lot 220318SAM)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
54	Diphenylamine		1,002.4	µg/mL	+/-	5.8280	µg/mL	Gravimetric
	CAS # 122-39-4	(Lot MKCH1042)			+/-	30.3205	µg/mL	Unstressed
	Purity 99%				+/-	30.3205	µg/mL	Stressed
55	Azobenzene		1,000.4	µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 103-33-3	(Lot BCCC9136)			+/-	30.2616	µg/mL	Unstressed
	Purity 99%				+/-	30.2616	µg/mL	Stressed

56	4-Bromophenyl phenyl ether		1,001.7 µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 101-55-3	(Lot STBH6361)		+/-	30.3003	µg/mL	Unstressed
	Purity 99%			+/-	30.3003	µg/mL	Stressed
57	Hexachlorobenzene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 118-74-1	(Lot 13027400)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
58	Pentachlorophenol		1,000.4 µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 87-86-5	(Lot 211229RSR)		+/-	30.2616	µg/mL	Unstressed
	Purity 99%			+/-	30.2616	µg/mL	Stressed
59	Phenanthrene		1,000.8 µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 85-01-8	(Lot MKCL7390)		+/-	30.2734	µg/mL	Unstressed
	Purity 99%			+/-	30.2734	µg/mL	Stressed
60	Anthracene		1,000.7 µg/mL	+/-	5.8180	µg/mL	Gravimetric
	CAS # 120-12-7	(Lot MKCN0922)		+/-	30.2684	µg/mL	Unstressed
	Purity 99%			+/-	30.2684	µg/mL	Stressed
61	Carbazole		1,002.1 µg/mL	+/-	5.8260	µg/mL	Gravimetric
	CAS # 86-74-8	(Lot 12549400)		+/-	30.3104	µg/mL	Unstressed
	Purity 99%			+/-	30.3104	µg/mL	Stressed
62	Di-n-butylphthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 84-74-2	(Lot MKCL9573)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
63	Fluoranthene		1,000.6 µg/mL	+/-	5.8173	µg/mL	Gravimetric
	CAS # 206-44-0	(Lot MKCQ4728)		+/-	30.2650	µg/mL	Unstressed
	Purity 99%			+/-	30.2650	µg/mL	Stressed
64	Pyrene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 129-00-0	(Lot BCCG2258)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
65	Benzyl butyl phthalate		1,001.0 µg/mL	+/-	5.8199	µg/mL	Gravimetric
	CAS # 85-68-7	(Lot MKCN9008)		+/-	30.2784	µg/mL	Unstressed
	Purity 99%			+/-	30.2784	µg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,000.2 µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 103-23-1	(Lot MKCM1988)		+/-	30.2532	µg/mL	Unstressed
	Purity 99%			+/-	30.2532	µg/mL	Stressed
67	Benz(a)anthracene		1,000.3 µg/mL	+/-	5.8159	µg/mL	Gravimetric
	CAS # 56-55-3	(Lot RP220209)		+/-	30.2579	µg/mL	Unstressed
	Purity 96%			+/-	30.2579	µg/mL	Stressed
68	Chrysene		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 218-01-9	(Lot 468677L08C)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 117-81-7	(Lot MKCQ3468)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
70	Di-n-octyl phthalate		1,001.9 µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 117-84-0	(Lot 12382500)		+/-	30.3053	µg/mL	Unstressed
	Purity 99%			+/-	30.3053	µg/mL	Stressed
71	Benzo(b)fluoranthene		1,001.1 µg/mL	+/-	5.8202	µg/mL	Gravimetric
	CAS # 205-99-2	(Lot 012012B)		+/-	30.2801	µg/mL	Unstressed
	Purity 99%			+/-	30.2801	µg/mL	Stressed

72	Benzo(k)fluoranthene		1,000.8	µg/mL	+/- 5.8186	µg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012019K)			+/- 30.2717	µg/mL	Unstressed
	Purity 99%				+/- 30.2717	µg/mL	Stressed
73	Benzo(a)pyrene		1,000.9	µg/mL	+/- 5.8196	µg/mL	Gravimetric
	CAS # 50-32-8	(Lot Z8BKF)			+/- 30.2768	µg/mL	Unstressed
	Purity 99%				+/- 30.2768	µg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,001.2	µg/mL	+/- 5.8212	µg/mL	Gravimetric
	CAS # 193-39-5	(Lot 12-JKL-118-9)			+/- 30.2852	µg/mL	Unstressed
	Purity 99%				+/- 30.2852	µg/mL	Stressed
75	Dibenz(a,h)anthracene		1,000.3	µg/mL	+/- 5.8160	µg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/- 30.2583	µg/mL	Unstressed
	Purity 99%				+/- 30.2583	µg/mL	Stressed
76	Benzo(g,h,i)perylene		1,001.7	µg/mL	+/- 5.8238	µg/mL	Gravimetric
	CAS # 191-24-2	(Lot AVUAD)			+/- 30.2987	µg/mL	Unstressed
	Purity 98%				+/- 30.2987	µg/mL	Stressed

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

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

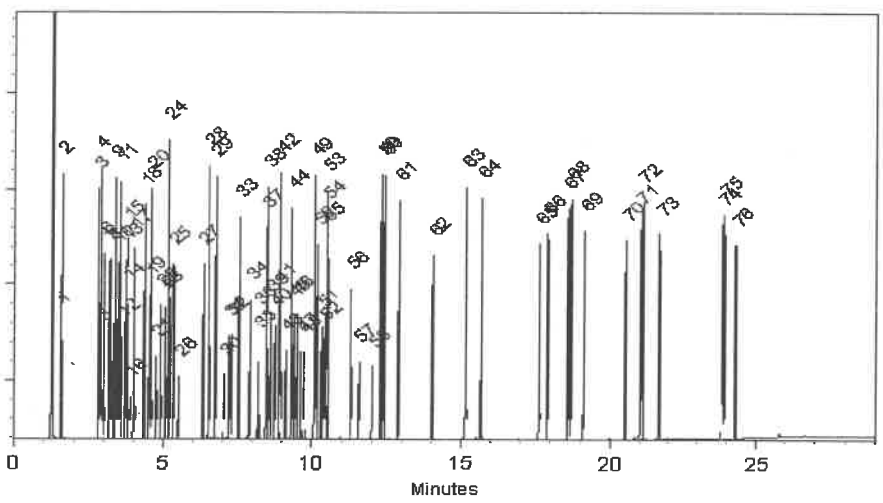
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

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

Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID



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

Cathleen Soltis - Mix Technician

Date Mixed: 13-May-2022 **Balance:** B442140311

Christie Mills - Operations Technician II

Date Passed: 02-Jun-2022

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.

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Received by CG on 02/06/23
S 11016 to S 11045

Catalog No. : 31850 **Lot No.:** A0185274

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2023 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pyridine **CAS #** 110-86-1 **Purity** 99%	(Lot SHBL0433)	1,001.1 µg/mL	+/- 5.8205 µg/mL +/- 30.2818 µg/mL +/- 30.2818 µg/mL		Gravimetric Unstressed Stressed
2	N-Nitrosodimethylamine **CAS #** 62-75-9 **Purity** 99%	(Lot 220520JLM)	1,001.1 µg/mL	+/- 5.8202 µg/mL +/- 30.2801 µg/mL +/- 30.2801 µg/mL		Gravimetric Unstressed Stressed
3	Phenol **CAS #** 108-95-2 **Purity** 99%	(Lot MKCK1120)	1,000.8 µg/mL	+/- 5.8189 µg/mL +/- 30.2734 µg/mL +/- 30.2734 µg/mL		Gravimetric Unstressed Stressed
4	Aniline **CAS #** 62-53-3 **Purity** 99%	(Lot X22F726)	1,001.2 µg/mL	+/- 5.8212 µg/mL +/- 30.2852 µg/mL +/- 30.2852 µg/mL		Gravimetric Unstressed Stressed
5	Bis(2-chloroethyl)ether **CAS #** 111-44-4 **Purity** 99%	(Lot SHBL6942)	1,000.8 µg/mL	+/- 5.8186 µg/mL +/- 30.2717 µg/mL +/- 30.2717 µg/mL		Gravimetric Unstressed Stressed
6	2-Chlorophenol **CAS #** 95-57-8 **Purity** 99%	(Lot STBH7290)	1,002.3 µg/mL	+/- 5.8273 µg/mL +/- 30.3171 µg/mL +/- 30.3171 µg/mL		Gravimetric Unstressed Stressed
7	1,3-Dichlorobenzene **CAS #** 541-73-1 **Purity** 99%	(Lot BCBZ7498)	1,001.2 µg/mL	+/- 5.8209 µg/mL +/- 30.2835 µg/mL +/- 30.2835 µg/mL		Gravimetric Unstressed Stressed

8	1,4-Dichlorobenzene **CAS #** 106-46-7 **Purity** 99%	(Lot MKBS4401V)	1,001.0	µg/mL	+/- 5.8199 +/- 30.2784 +/- 30.2784	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Benzyl alcohol **CAS #** 100-51-6 **Purity** 99%	(Lot SHBK5943)	1,000.6	µg/mL	+/- 5.8176 +/- 30.2667 +/- 30.2667	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	1,2-Dichlorobenzene **CAS #** 95-50-1 **Purity** 99%	(Lot SHBN3835)	1,002.1	µg/mL	+/- 5.8260 +/- 30.3104 +/- 30.3104	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	2-Methylphenol (o-cresol) **CAS #** 95-48-7 **Purity** 99%	(Lot SHBM5003)	1,000.4	µg/mL	+/- 5.8167 +/- 30.2616 +/- 30.2616	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	2,2'-oxybis(1-chloropropane) **CAS #** 108-60-1 **Purity** 99%	(Lot 12549200)	1,000.8	µg/mL	+/- 5.8186 +/- 30.2717 +/- 30.2717	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	3-Methylphenol (m-cresol) **CAS #** 108-39-4 **Purity** 99%	(Lot STBJ0710)	500.4	µg/mL	+/- 2.9164 +/- 15.1388 +/- 15.1388	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	4-Methylphenol (p-cresol) **CAS #** 106-44-5 **Purity** 99%	(Lot SHBN1151)	500.1	µg/mL	+/- 2.9144 +/- 15.1288 +/- 15.1288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	N-Nitroso-di-n-propylamine **CAS #** 621-64-7 **Purity** 99%	(Lot 2D5VJ)	1,000.2	µg/mL	+/- 5.8151 +/- 30.2532 +/- 30.2532	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	Hexachloroethane **CAS #** 67-72-1 **Purity** 99%	(Lot QTORH)	1,001.7	µg/mL	+/- 5.8238 +/- 30.2986 +/- 30.2986	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Nitrobenzene **CAS #** 98-95-3 **Purity** 99%	(Lot 10224044)	1,000.3	µg/mL	+/- 5.8157 +/- 30.2566 +/- 30.2566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Isophorone **CAS #** 78-59-1 **Purity** 99%	(Lot MKCC9506)	1,002.2	µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	2-Nitrophenol **CAS #** 88-75-5 **Purity** 99%	(Lot BCCB2407)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	2,4-Dimethylphenol **CAS #** 105-67-9 **Purity** 99%	(Lot XW5GK)	1,002.6	µg/mL	+/- 5.8293 +/- 30.3272 +/- 30.3272	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Bis(2-chloroethoxy)methane **CAS #** 111-91-1 **Purity** 99%	(Lot 12665000)	1,000.9	µg/mL	+/- 5.8193 +/- 30.2751 +/- 30.2751	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2,4-Dichlorophenol **CAS #** 120-83-2 **Purity** 99%	(Lot BCBZ6787)	1,001.5	µg/mL	+/- 5.8228 +/- 30.2936 +/- 30.2936	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,2,4-Trichlorobenzene **CAS #** 120-82-1 **Purity** 99%	(Lot SHBM0526)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Naphthalene **CAS #** 91-20-3 **Purity** 99%	(Lot MKCH0219)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	4-Chloroaniline **CAS #** 106-47-8 **Purity** 99%	(Lot BCBJ1580V)	1,000.1 µg/mL	+/- 5.8144 +/- 30.2499 +/- 30.2499	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	Hexachlorobutadiene **CAS #** 87-68-3 **Purity** 99%	(Lot X05J)	1,002.2 µg/mL	+/- 5.8270 +/- 30.3154 +/- 30.3154	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	4-Chloro-3-methylphenol **CAS #** 59-50-7 **Purity** 99%	(Lot BCCD4461)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	2-Methylnaphthalene **CAS #** 91-57-6 **Purity** 96%	(Lot STBK0259)	1,002.2 µg/mL	+/- 5.8268 +/- 30.3143 +/- 30.3143	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	1-Methylnaphthalene **CAS #** 90-12-0 **Purity** 99%	(Lot 5234.00-3)	1,000.0 µg/mL	+/- 5.8141 +/- 30.2482 +/- 30.2482	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	Hexachlorocyclopentadiene **CAS #** 77-47-4 **Purity** 99%	(Lot 0012020)	1,000.7 µg/mL	+/- 5.8180 +/- 30.2684 +/- 30.2684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	2,4,6-Trichlorophenol **CAS #** 88-06-2 **Purity** 99%	(Lot STBJ5914)	1,002.9 µg/mL	+/- 5.8309 +/- 30.3356 +/- 30.3356	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	2,4,5-Trichlorophenol **CAS #** 95-95-4 **Purity** 98%	(Lot FHN01)	1,001.9 µg/mL	+/- 5.8254 +/- 30.3069 +/- 30.3069	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	2-Chloronaphthalene **CAS #** 91-58-7 **Purity** 99%	(Lot TWYRD)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	2-Nitroaniline **CAS #** 88-74-4 **Purity** 99%	(Lot MKCJ8895)	1,001.6 µg/mL	+/- 5.8235 +/- 30.2969 +/- 30.2969	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	1,4-Dinitrobenzene **CAS #** 100-25-4 **Purity** 99%	(Lot STBF8844V)	1,002.2 µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	Acenaphthylene **CAS #** 208-96-8 **Purity** 98%	(Lot L20W)	1,000.0 µg/mL	+/- 5.8143 +/- 30.2493 +/- 30.2493	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,3-Dinitrobenzene **CAS #** 99-65-0 **Purity** 99%	(Lot 1-DXX-24-1)	1,002.7 µg/mL	+/- 5.8296 +/- 30.3289 +/- 30.3289	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	Dimethylphthalate **CAS #** 131-11-3 **Purity** 99%	(Lot 10117699)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99%	(Lot BCBB8606)	1,001.3 µg/mL	+/- 5.8218 +/- 30.2885 +/- 30.2885	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	1,2-Dinitrobenzene		1,000.2	µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 528-29-0	(Lot MKCH6067)			+/-	30.2532	µg/mL	Unstressed
	Purity 99%				+/-	30.2532	µg/mL	Stressed
41	Acenaphthene		1,001.9	µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 83-32-9	(Lot MKCQ4733)			+/-	30.3053	µg/mL	Unstressed
	Purity 99%				+/-	30.3053	µg/mL	Stressed
42	3-Nitroaniline		1,000.7	µg/mL	+/-	5.8183	µg/mL	Gravimetric
	CAS # 99-09-2	(Lot MKCH5457)			+/-	30.2700	µg/mL	Unstressed
	Purity 99%				+/-	30.2700	µg/mL	Stressed
43	2,4-Dinitrophenol		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 51-28-5	(Lot STBH7564)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
44	Dibenzofuran		1,001.7	µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 132-64-9	(Lot MKCN1772)			+/-	30.3003	µg/mL	Unstressed
	Purity 99%				+/-	30.3003	µg/mL	Stressed
45	2,4-Dinitrotoluene		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
46	4-Nitrophenol		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 100-02-7	(Lot MKCF6111)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
47	2,3,4,6-Tetrachlorophenol		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 58-90-2	(Lot PR-30126)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed
48	2,3,5,6-Tetrachlorophenol		1,000.3	µg/mL	+/-	5.8157	µg/mL	Gravimetric
	CAS # 935-95-5	(Lot 012016)			+/-	30.2566	µg/mL	Unstressed
	Purity 99%				+/-	30.2566	µg/mL	Stressed
49	Fluorene		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 86-73-7	(Lot 10236068)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
50	4-Chlorophenyl phenyl ether		1,001.7	µg/mL	+/-	5.8238	µg/mL	Gravimetric
	CAS # 7005-72-3	(Lot MKCQ0984)			+/-	30.2986	µg/mL	Unstressed
	Purity 99%				+/-	30.2986	µg/mL	Stressed
51	Diethylphthalate		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 84-66-2	(Lot BCCD3396)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
52	4-Nitroaniline		1,001.8	µg/mL	+/-	5.8247	µg/mL	Gravimetric
	CAS # 100-01-6	(Lot RP220302)			+/-	30.3036	µg/mL	Unstressed
	Purity 99%				+/-	30.3036	µg/mL	Stressed
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 534-52-1	(Lot 220318SAM)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
54	Diphenylamine		1,002.4	µg/mL	+/-	5.8280	µg/mL	Gravimetric
	CAS # 122-39-4	(Lot MKCH1042)			+/-	30.3205	µg/mL	Unstressed
	Purity 99%				+/-	30.3205	µg/mL	Stressed
55	Azobenzene		1,000.4	µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 103-33-3	(Lot BCCC9136)			+/-	30.2616	µg/mL	Unstressed
	Purity 99%				+/-	30.2616	µg/mL	Stressed

56	4-Bromophenyl phenyl ether		1,001.7 µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 101-55-3	(Lot STBH6361)		+/-	30.3003	µg/mL	Unstressed
	Purity 99%			+/-	30.3003	µg/mL	Stressed
57	Hexachlorobenzene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 118-74-1	(Lot 13027400)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
58	Pentachlorophenol		1,000.4 µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 87-86-5	(Lot 211229RSR)		+/-	30.2616	µg/mL	Unstressed
	Purity 99%			+/-	30.2616	µg/mL	Stressed
59	Phenanthrene		1,000.8 µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 85-01-8	(Lot MKCL7390)		+/-	30.2734	µg/mL	Unstressed
	Purity 99%			+/-	30.2734	µg/mL	Stressed
60	Anthracene		1,000.7 µg/mL	+/-	5.8180	µg/mL	Gravimetric
	CAS # 120-12-7	(Lot MKCN0922)		+/-	30.2684	µg/mL	Unstressed
	Purity 99%			+/-	30.2684	µg/mL	Stressed
61	Carbazole		1,002.1 µg/mL	+/-	5.8260	µg/mL	Gravimetric
	CAS # 86-74-8	(Lot 12549400)		+/-	30.3104	µg/mL	Unstressed
	Purity 99%			+/-	30.3104	µg/mL	Stressed
62	Di-n-butylphthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 84-74-2	(Lot MKCL9573)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
63	Fluoranthene		1,000.6 µg/mL	+/-	5.8173	µg/mL	Gravimetric
	CAS # 206-44-0	(Lot MKCQ4728)		+/-	30.2650	µg/mL	Unstressed
	Purity 99%			+/-	30.2650	µg/mL	Stressed
64	Pyrene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 129-00-0	(Lot BCCG2258)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
65	Benzyl butyl phthalate		1,001.0 µg/mL	+/-	5.8199	µg/mL	Gravimetric
	CAS # 85-68-7	(Lot MKCN9008)		+/-	30.2784	µg/mL	Unstressed
	Purity 99%			+/-	30.2784	µg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,000.2 µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 103-23-1	(Lot MKCM1988)		+/-	30.2532	µg/mL	Unstressed
	Purity 99%			+/-	30.2532	µg/mL	Stressed
67	Benz(a)anthracene		1,000.3 µg/mL	+/-	5.8159	µg/mL	Gravimetric
	CAS # 56-55-3	(Lot RP220209)		+/-	30.2579	µg/mL	Unstressed
	Purity 96%			+/-	30.2579	µg/mL	Stressed
68	Chrysene		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 218-01-9	(Lot 468677L08C)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 117-81-7	(Lot MKCQ3468)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
70	Di-n-octyl phthalate		1,001.9 µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 117-84-0	(Lot 12382500)		+/-	30.3053	µg/mL	Unstressed
	Purity 99%			+/-	30.3053	µg/mL	Stressed
71	Benzo(b)fluoranthene		1,001.1 µg/mL	+/-	5.8202	µg/mL	Gravimetric
	CAS # 205-99-2	(Lot 012012B)		+/-	30.2801	µg/mL	Unstressed
	Purity 99%			+/-	30.2801	µg/mL	Stressed

72	Benzo(k)fluoranthene		1,000.8	µg/mL	+/- 5.8186	µg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012019K)			+/- 30.2717	µg/mL	Unstressed
	Purity 99%				+/- 30.2717	µg/mL	Stressed
73	Benzo(a)pyrene		1,000.9	µg/mL	+/- 5.8196	µg/mL	Gravimetric
	CAS # 50-32-8	(Lot Z8BKF)			+/- 30.2768	µg/mL	Unstressed
	Purity 99%				+/- 30.2768	µg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,001.2	µg/mL	+/- 5.8212	µg/mL	Gravimetric
	CAS # 193-39-5	(Lot 12-JKL-118-9)			+/- 30.2852	µg/mL	Unstressed
	Purity 99%				+/- 30.2852	µg/mL	Stressed
75	Dibenz(a,h)anthracene		1,000.3	µg/mL	+/- 5.8160	µg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/- 30.2583	µg/mL	Unstressed
	Purity 99%				+/- 30.2583	µg/mL	Stressed
76	Benzo(g,h,i)perylene		1,001.7	µg/mL	+/- 5.8238	µg/mL	Gravimetric
	CAS # 191-24-2	(Lot AVUAD)			+/- 30.2987	µg/mL	Unstressed
	Purity 98%				+/- 30.2987	µg/mL	Stressed

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

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

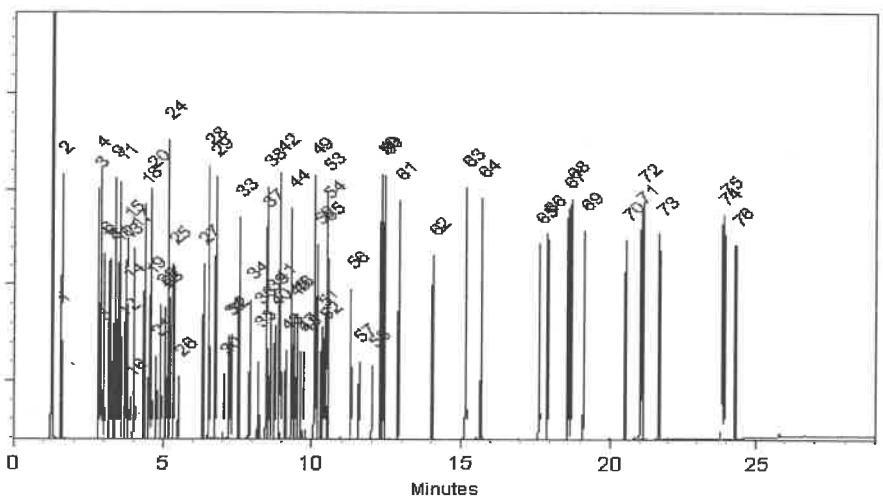
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

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

Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID



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

Cathleen Soltis - Mix Technician

Date Mixed: 13-May-2022 **Balance:** B442140311

Christie Mills - Operations Technician II

Date Passed: 02-Jun-2022

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.

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Received by CG on 02/06/23
S 11016 to S 11045

Catalog No. : 31850 **Lot No.:** A0185274

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2023 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pyridine **CAS #** 110-86-1 **Purity** 99%	(Lot SHBL0433)	1,001.1 µg/mL	+/- 5.8205 µg/mL +/- 30.2818 µg/mL +/- 30.2818 µg/mL		Gravimetric Unstressed Stressed
2	N-Nitrosodimethylamine **CAS #** 62-75-9 **Purity** 99%	(Lot 220520JLM)	1,001.1 µg/mL	+/- 5.8202 µg/mL +/- 30.2801 µg/mL +/- 30.2801 µg/mL		Gravimetric Unstressed Stressed
3	Phenol **CAS #** 108-95-2 **Purity** 99%	(Lot MKCK1120)	1,000.8 µg/mL	+/- 5.8189 µg/mL +/- 30.2734 µg/mL +/- 30.2734 µg/mL		Gravimetric Unstressed Stressed
4	Aniline **CAS #** 62-53-3 **Purity** 99%	(Lot X22F726)	1,001.2 µg/mL	+/- 5.8212 µg/mL +/- 30.2852 µg/mL +/- 30.2852 µg/mL		Gravimetric Unstressed Stressed
5	Bis(2-chloroethyl)ether **CAS #** 111-44-4 **Purity** 99%	(Lot SHBL6942)	1,000.8 µg/mL	+/- 5.8186 µg/mL +/- 30.2717 µg/mL +/- 30.2717 µg/mL		Gravimetric Unstressed Stressed
6	2-Chlorophenol **CAS #** 95-57-8 **Purity** 99%	(Lot STBH7290)	1,002.3 µg/mL	+/- 5.8273 µg/mL +/- 30.3171 µg/mL +/- 30.3171 µg/mL		Gravimetric Unstressed Stressed
7	1,3-Dichlorobenzene **CAS #** 541-73-1 **Purity** 99%	(Lot BCBZ7498)	1,001.2 µg/mL	+/- 5.8209 µg/mL +/- 30.2835 µg/mL +/- 30.2835 µg/mL		Gravimetric Unstressed Stressed

8	1,4-Dichlorobenzene **CAS #** 106-46-7 **Purity** 99%	(Lot MKBS4401V)	1,001.0	µg/mL	+/- 5.8199 +/- 30.2784 +/- 30.2784	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Benzyl alcohol **CAS #** 100-51-6 **Purity** 99%	(Lot SHBK5943)	1,000.6	µg/mL	+/- 5.8176 +/- 30.2667 +/- 30.2667	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	1,2-Dichlorobenzene **CAS #** 95-50-1 **Purity** 99%	(Lot SHBN3835)	1,002.1	µg/mL	+/- 5.8260 +/- 30.3104 +/- 30.3104	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	2-Methylphenol (o-cresol) **CAS #** 95-48-7 **Purity** 99%	(Lot SHBM5003)	1,000.4	µg/mL	+/- 5.8167 +/- 30.2616 +/- 30.2616	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	2,2'-oxybis(1-chloropropane) **CAS #** 108-60-1 **Purity** 99%	(Lot 12549200)	1,000.8	µg/mL	+/- 5.8186 +/- 30.2717 +/- 30.2717	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	3-Methylphenol (m-cresol) **CAS #** 108-39-4 **Purity** 99%	(Lot STBJ0710)	500.4	µg/mL	+/- 2.9164 +/- 15.1388 +/- 15.1388	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	4-Methylphenol (p-cresol) **CAS #** 106-44-5 **Purity** 99%	(Lot SHBN1151)	500.1	µg/mL	+/- 2.9144 +/- 15.1288 +/- 15.1288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	N-Nitroso-di-n-propylamine **CAS #** 621-64-7 **Purity** 99%	(Lot 2D5VJ)	1,000.2	µg/mL	+/- 5.8151 +/- 30.2532 +/- 30.2532	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	Hexachloroethane **CAS #** 67-72-1 **Purity** 99%	(Lot QTORH)	1,001.7	µg/mL	+/- 5.8238 +/- 30.2986 +/- 30.2986	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Nitrobenzene **CAS #** 98-95-3 **Purity** 99%	(Lot 10224044)	1,000.3	µg/mL	+/- 5.8157 +/- 30.2566 +/- 30.2566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Isophorone **CAS #** 78-59-1 **Purity** 99%	(Lot MKCC9506)	1,002.2	µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	2-Nitrophenol **CAS #** 88-75-5 **Purity** 99%	(Lot BCCB2407)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	2,4-Dimethylphenol **CAS #** 105-67-9 **Purity** 99%	(Lot XW5GK)	1,002.6	µg/mL	+/- 5.8293 +/- 30.3272 +/- 30.3272	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Bis(2-chloroethoxy)methane **CAS #** 111-91-1 **Purity** 99%	(Lot 12665000)	1,000.9	µg/mL	+/- 5.8193 +/- 30.2751 +/- 30.2751	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2,4-Dichlorophenol **CAS #** 120-83-2 **Purity** 99%	(Lot BCBZ6787)	1,001.5	µg/mL	+/- 5.8228 +/- 30.2936 +/- 30.2936	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,2,4-Trichlorobenzene **CAS #** 120-82-1 **Purity** 99%	(Lot SHBM0526)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Naphthalene **CAS #** 91-20-3 **Purity** 99%	(Lot MKCH0219)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	4-Chloroaniline **CAS #** 106-47-8 **Purity** 99%	(Lot BCBJ1580V)	1,000.1 µg/mL	+/- 5.8144 +/- 30.2499 +/- 30.2499	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	Hexachlorobutadiene **CAS #** 87-68-3 **Purity** 99%	(Lot X05J)	1,002.2 µg/mL	+/- 5.8270 +/- 30.3154 +/- 30.3154	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	4-Chloro-3-methylphenol **CAS #** 59-50-7 **Purity** 99%	(Lot BCCD4461)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	2-Methylnaphthalene **CAS #** 91-57-6 **Purity** 96%	(Lot STBK0259)	1,002.2 µg/mL	+/- 5.8268 +/- 30.3143 +/- 30.3143	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	1-Methylnaphthalene **CAS #** 90-12-0 **Purity** 99%	(Lot 5234.00-3)	1,000.0 µg/mL	+/- 5.8141 +/- 30.2482 +/- 30.2482	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	Hexachlorocyclopentadiene **CAS #** 77-47-4 **Purity** 99%	(Lot 0012020)	1,000.7 µg/mL	+/- 5.8180 +/- 30.2684 +/- 30.2684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	2,4,6-Trichlorophenol **CAS #** 88-06-2 **Purity** 99%	(Lot STBJ5914)	1,002.9 µg/mL	+/- 5.8309 +/- 30.3356 +/- 30.3356	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	2,4,5-Trichlorophenol **CAS #** 95-95-4 **Purity** 98%	(Lot FHN01)	1,001.9 µg/mL	+/- 5.8254 +/- 30.3069 +/- 30.3069	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	2-Chloronaphthalene **CAS #** 91-58-7 **Purity** 99%	(Lot TWYRD)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	2-Nitroaniline **CAS #** 88-74-4 **Purity** 99%	(Lot MKCJ8895)	1,001.6 µg/mL	+/- 5.8235 +/- 30.2969 +/- 30.2969	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	1,4-Dinitrobenzene **CAS #** 100-25-4 **Purity** 99%	(Lot STBF8844V)	1,002.2 µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	Acenaphthylene **CAS #** 208-96-8 **Purity** 98%	(Lot L20W)	1,000.0 µg/mL	+/- 5.8143 +/- 30.2493 +/- 30.2493	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,3-Dinitrobenzene **CAS #** 99-65-0 **Purity** 99%	(Lot 1-DXX-24-1)	1,002.7 µg/mL	+/- 5.8296 +/- 30.3289 +/- 30.3289	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	Dimethylphthalate **CAS #** 131-11-3 **Purity** 99%	(Lot 10117699)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99%	(Lot BCBB8606)	1,001.3 µg/mL	+/- 5.8218 +/- 30.2885 +/- 30.2885	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	1,2-Dinitrobenzene		1,000.2	µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 528-29-0	(Lot MKCH6067)			+/-	30.2532	µg/mL	Unstressed
	Purity 99%				+/-	30.2532	µg/mL	Stressed
41	Acenaphthene		1,001.9	µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 83-32-9	(Lot MKCQ4733)			+/-	30.3053	µg/mL	Unstressed
	Purity 99%				+/-	30.3053	µg/mL	Stressed
42	3-Nitroaniline		1,000.7	µg/mL	+/-	5.8183	µg/mL	Gravimetric
	CAS # 99-09-2	(Lot MKCH5457)			+/-	30.2700	µg/mL	Unstressed
	Purity 99%				+/-	30.2700	µg/mL	Stressed
43	2,4-Dinitrophenol		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 51-28-5	(Lot STBH7564)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
44	Dibenzofuran		1,001.7	µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 132-64-9	(Lot MKCN1772)			+/-	30.3003	µg/mL	Unstressed
	Purity 99%				+/-	30.3003	µg/mL	Stressed
45	2,4-Dinitrotoluene		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
46	4-Nitrophenol		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 100-02-7	(Lot MKCF6111)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
47	2,3,4,6-Tetrachlorophenol		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 58-90-2	(Lot PR-30126)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed
48	2,3,5,6-Tetrachlorophenol		1,000.3	µg/mL	+/-	5.8157	µg/mL	Gravimetric
	CAS # 935-95-5	(Lot 012016)			+/-	30.2566	µg/mL	Unstressed
	Purity 99%				+/-	30.2566	µg/mL	Stressed
49	Fluorene		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 86-73-7	(Lot 10236068)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
50	4-Chlorophenyl phenyl ether		1,001.7	µg/mL	+/-	5.8238	µg/mL	Gravimetric
	CAS # 7005-72-3	(Lot MKCQ0984)			+/-	30.2986	µg/mL	Unstressed
	Purity 99%				+/-	30.2986	µg/mL	Stressed
51	Diethylphthalate		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 84-66-2	(Lot BCCD3396)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
52	4-Nitroaniline		1,001.8	µg/mL	+/-	5.8247	µg/mL	Gravimetric
	CAS # 100-01-6	(Lot RP220302)			+/-	30.3036	µg/mL	Unstressed
	Purity 99%				+/-	30.3036	µg/mL	Stressed
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 534-52-1	(Lot 220318SAM)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
54	Diphenylamine		1,002.4	µg/mL	+/-	5.8280	µg/mL	Gravimetric
	CAS # 122-39-4	(Lot MKCH1042)			+/-	30.3205	µg/mL	Unstressed
	Purity 99%				+/-	30.3205	µg/mL	Stressed
55	Azobenzene		1,000.4	µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 103-33-3	(Lot BCCC9136)			+/-	30.2616	µg/mL	Unstressed
	Purity 99%				+/-	30.2616	µg/mL	Stressed

56	4-Bromophenyl phenyl ether		1,001.7 µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 101-55-3	(Lot STBH6361)		+/-	30.3003	µg/mL	Unstressed
	Purity 99%			+/-	30.3003	µg/mL	Stressed
57	Hexachlorobenzene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 118-74-1	(Lot 13027400)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
58	Pentachlorophenol		1,000.4 µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 87-86-5	(Lot 211229RSR)		+/-	30.2616	µg/mL	Unstressed
	Purity 99%			+/-	30.2616	µg/mL	Stressed
59	Phenanthrene		1,000.8 µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 85-01-8	(Lot MKCL7390)		+/-	30.2734	µg/mL	Unstressed
	Purity 99%			+/-	30.2734	µg/mL	Stressed
60	Anthracene		1,000.7 µg/mL	+/-	5.8180	µg/mL	Gravimetric
	CAS # 120-12-7	(Lot MKCN0922)		+/-	30.2684	µg/mL	Unstressed
	Purity 99%			+/-	30.2684	µg/mL	Stressed
61	Carbazole		1,002.1 µg/mL	+/-	5.8260	µg/mL	Gravimetric
	CAS # 86-74-8	(Lot 12549400)		+/-	30.3104	µg/mL	Unstressed
	Purity 99%			+/-	30.3104	µg/mL	Stressed
62	Di-n-butylphthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 84-74-2	(Lot MKCL9573)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
63	Fluoranthene		1,000.6 µg/mL	+/-	5.8173	µg/mL	Gravimetric
	CAS # 206-44-0	(Lot MKCQ4728)		+/-	30.2650	µg/mL	Unstressed
	Purity 99%			+/-	30.2650	µg/mL	Stressed
64	Pyrene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 129-00-0	(Lot BCCG2258)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
65	Benzyl butyl phthalate		1,001.0 µg/mL	+/-	5.8199	µg/mL	Gravimetric
	CAS # 85-68-7	(Lot MKCN9008)		+/-	30.2784	µg/mL	Unstressed
	Purity 99%			+/-	30.2784	µg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,000.2 µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 103-23-1	(Lot MKCM1988)		+/-	30.2532	µg/mL	Unstressed
	Purity 99%			+/-	30.2532	µg/mL	Stressed
67	Benz(a)anthracene		1,000.3 µg/mL	+/-	5.8159	µg/mL	Gravimetric
	CAS # 56-55-3	(Lot RP220209)		+/-	30.2579	µg/mL	Unstressed
	Purity 96%			+/-	30.2579	µg/mL	Stressed
68	Chrysene		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 218-01-9	(Lot 468677L08C)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 117-81-7	(Lot MKCQ3468)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
70	Di-n-octyl phthalate		1,001.9 µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 117-84-0	(Lot 12382500)		+/-	30.3053	µg/mL	Unstressed
	Purity 99%			+/-	30.3053	µg/mL	Stressed
71	Benzo(b)fluoranthene		1,001.1 µg/mL	+/-	5.8202	µg/mL	Gravimetric
	CAS # 205-99-2	(Lot 012012B)		+/-	30.2801	µg/mL	Unstressed
	Purity 99%			+/-	30.2801	µg/mL	Stressed

72	Benzo(k)fluoranthene		1,000.8	µg/mL	+/- 5.8186	µg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012019K)			+/- 30.2717	µg/mL	Unstressed
	Purity 99%				+/- 30.2717	µg/mL	Stressed
73	Benzo(a)pyrene		1,000.9	µg/mL	+/- 5.8196	µg/mL	Gravimetric
	CAS # 50-32-8	(Lot Z8BKF)			+/- 30.2768	µg/mL	Unstressed
	Purity 99%				+/- 30.2768	µg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,001.2	µg/mL	+/- 5.8212	µg/mL	Gravimetric
	CAS # 193-39-5	(Lot 12-JKL-118-9)			+/- 30.2852	µg/mL	Unstressed
	Purity 99%				+/- 30.2852	µg/mL	Stressed
75	Dibenz(a,h)anthracene		1,000.3	µg/mL	+/- 5.8160	µg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/- 30.2583	µg/mL	Unstressed
	Purity 99%				+/- 30.2583	µg/mL	Stressed
76	Benzo(g,h,i)perylene		1,001.7	µg/mL	+/- 5.8238	µg/mL	Gravimetric
	CAS # 191-24-2	(Lot AVUAD)			+/- 30.2987	µg/mL	Unstressed
	Purity 98%				+/- 30.2987	µg/mL	Stressed

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

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

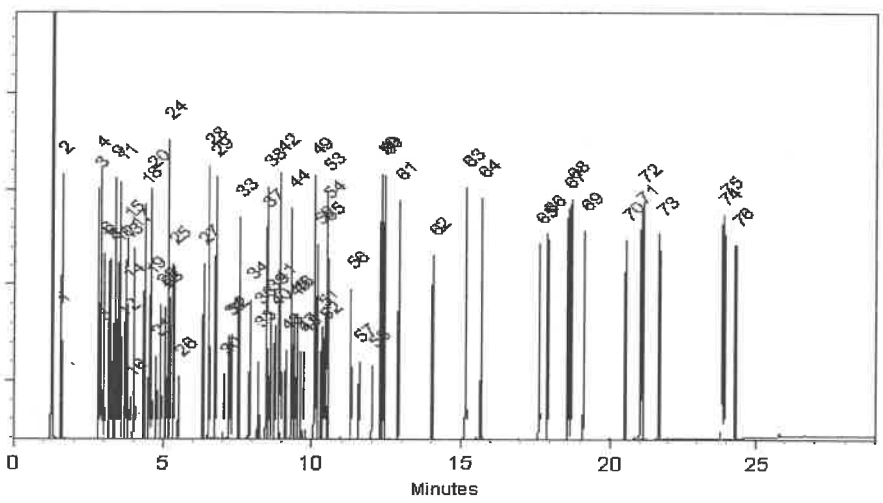
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

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

Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID



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

Cathleen Soltis - Mix Technician

Date Mixed: 13-May-2022 **Balance:** B442140311

Christie Mills - Operations Technician II

Date Passed: 02-Jun-2022

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.

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Received by CG on 02/06/23
S 11016 to S 11045

Catalog No. : 31850 **Lot No.:** A0185274

Description : 8270 MegaMix®

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

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

Expiration Date : November 30, 2023 **Storage:** 0°C or colder

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

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pyridine **CAS #** 110-86-1 **Purity** 99%	(Lot SHBL0433)	1,001.1 µg/mL	+/- 5.8205 µg/mL +/- 30.2818 µg/mL +/- 30.2818 µg/mL		Gravimetric Unstressed Stressed
2	N-Nitrosodimethylamine **CAS #** 62-75-9 **Purity** 99%	(Lot 220520JLM)	1,001.1 µg/mL	+/- 5.8202 µg/mL +/- 30.2801 µg/mL +/- 30.2801 µg/mL		Gravimetric Unstressed Stressed
3	Phenol **CAS #** 108-95-2 **Purity** 99%	(Lot MKCK1120)	1,000.8 µg/mL	+/- 5.8189 µg/mL +/- 30.2734 µg/mL +/- 30.2734 µg/mL		Gravimetric Unstressed Stressed
4	Aniline **CAS #** 62-53-3 **Purity** 99%	(Lot X22F726)	1,001.2 µg/mL	+/- 5.8212 µg/mL +/- 30.2852 µg/mL +/- 30.2852 µg/mL		Gravimetric Unstressed Stressed
5	Bis(2-chloroethyl)ether **CAS #** 111-44-4 **Purity** 99%	(Lot SHBL6942)	1,000.8 µg/mL	+/- 5.8186 µg/mL +/- 30.2717 µg/mL +/- 30.2717 µg/mL		Gravimetric Unstressed Stressed
6	2-Chlorophenol **CAS #** 95-57-8 **Purity** 99%	(Lot STBH7290)	1,002.3 µg/mL	+/- 5.8273 µg/mL +/- 30.3171 µg/mL +/- 30.3171 µg/mL		Gravimetric Unstressed Stressed
7	1,3-Dichlorobenzene **CAS #** 541-73-1 **Purity** 99%	(Lot BCBZ7498)	1,001.2 µg/mL	+/- 5.8209 µg/mL +/- 30.2835 µg/mL +/- 30.2835 µg/mL		Gravimetric Unstressed Stressed

8	1,4-Dichlorobenzene **CAS #** 106-46-7 **Purity** 99%	(Lot MKBS4401V)	1,001.0	µg/mL	+/- 5.8199 +/- 30.2784 +/- 30.2784	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Benzyl alcohol **CAS #** 100-51-6 **Purity** 99%	(Lot SHBK5943)	1,000.6	µg/mL	+/- 5.8176 +/- 30.2667 +/- 30.2667	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	1,2-Dichlorobenzene **CAS #** 95-50-1 **Purity** 99%	(Lot SHBN3835)	1,002.1	µg/mL	+/- 5.8260 +/- 30.3104 +/- 30.3104	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	2-Methylphenol (o-cresol) **CAS #** 95-48-7 **Purity** 99%	(Lot SHBM5003)	1,000.4	µg/mL	+/- 5.8167 +/- 30.2616 +/- 30.2616	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	2,2'-oxybis(1-chloropropane) **CAS #** 108-60-1 **Purity** 99%	(Lot 12549200)	1,000.8	µg/mL	+/- 5.8186 +/- 30.2717 +/- 30.2717	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	3-Methylphenol (m-cresol) **CAS #** 108-39-4 **Purity** 99%	(Lot STBJ0710)	500.4	µg/mL	+/- 2.9164 +/- 15.1388 +/- 15.1388	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	4-Methylphenol (p-cresol) **CAS #** 106-44-5 **Purity** 99%	(Lot SHBN1151)	500.1	µg/mL	+/- 2.9144 +/- 15.1288 +/- 15.1288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	N-Nitroso-di-n-propylamine **CAS #** 621-64-7 **Purity** 99%	(Lot 2D5VJ)	1,000.2	µg/mL	+/- 5.8151 +/- 30.2532 +/- 30.2532	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	Hexachloroethane **CAS #** 67-72-1 **Purity** 99%	(Lot QTORH)	1,001.7	µg/mL	+/- 5.8238 +/- 30.2986 +/- 30.2986	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Nitrobenzene **CAS #** 98-95-3 **Purity** 99%	(Lot 10224044)	1,000.3	µg/mL	+/- 5.8157 +/- 30.2566 +/- 30.2566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Isophorone **CAS #** 78-59-1 **Purity** 99%	(Lot MKCC9506)	1,002.2	µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	2-Nitrophenol **CAS #** 88-75-5 **Purity** 99%	(Lot BCCB2407)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	2,4-Dimethylphenol **CAS #** 105-67-9 **Purity** 99%	(Lot XW5GK)	1,002.6	µg/mL	+/- 5.8293 +/- 30.3272 +/- 30.3272	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Bis(2-chloroethoxy)methane **CAS #** 111-91-1 **Purity** 99%	(Lot 12665000)	1,000.9	µg/mL	+/- 5.8193 +/- 30.2751 +/- 30.2751	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2,4-Dichlorophenol **CAS #** 120-83-2 **Purity** 99%	(Lot BCBZ6787)	1,001.5	µg/mL	+/- 5.8228 +/- 30.2936 +/- 30.2936	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,2,4-Trichlorobenzene **CAS #** 120-82-1 **Purity** 99%	(Lot SHBM0526)	1,000.8	µg/mL	+/- 5.8189 +/- 30.2734 +/- 30.2734	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Naphthalene **CAS #** 91-20-3 **Purity** 99%	(Lot MKCH0219)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	4-Chloroaniline **CAS #** 106-47-8 **Purity** 99%	(Lot BCBJ1580V)	1,000.1 µg/mL	+/- 5.8144 +/- 30.2499 +/- 30.2499	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	Hexachlorobutadiene **CAS #** 87-68-3 **Purity** 99%	(Lot X05J)	1,002.2 µg/mL	+/- 5.8270 +/- 30.3154 +/- 30.3154	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	4-Chloro-3-methylphenol **CAS #** 59-50-7 **Purity** 99%	(Lot BCCD4461)	1,001.3 µg/mL	+/- 5.8215 +/- 30.2868 +/- 30.2868	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	2-Methylnaphthalene **CAS #** 91-57-6 **Purity** 96%	(Lot STBK0259)	1,002.2 µg/mL	+/- 5.8268 +/- 30.3143 +/- 30.3143	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	1-Methylnaphthalene **CAS #** 90-12-0 **Purity** 99%	(Lot 5234.00-3)	1,000.0 µg/mL	+/- 5.8141 +/- 30.2482 +/- 30.2482	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	Hexachlorocyclopentadiene **CAS #** 77-47-4 **Purity** 99%	(Lot 0012020)	1,000.7 µg/mL	+/- 5.8180 +/- 30.2684 +/- 30.2684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	2,4,6-Trichlorophenol **CAS #** 88-06-2 **Purity** 99%	(Lot STBJ5914)	1,002.9 µg/mL	+/- 5.8309 +/- 30.3356 +/- 30.3356	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	2,4,5-Trichlorophenol **CAS #** 95-95-4 **Purity** 98%	(Lot FHN01)	1,001.9 µg/mL	+/- 5.8254 +/- 30.3069 +/- 30.3069	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	2-Chloronaphthalene **CAS #** 91-58-7 **Purity** 99%	(Lot TWYRD)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	2-Nitroaniline **CAS #** 88-74-4 **Purity** 99%	(Lot MKCJ8895)	1,001.6 µg/mL	+/- 5.8235 +/- 30.2969 +/- 30.2969	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	1,4-Dinitrobenzene **CAS #** 100-25-4 **Purity** 99%	(Lot STBF8844V)	1,002.2 µg/mL	+/- 5.8267 +/- 30.3137 +/- 30.3137	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	Acenaphthylene **CAS #** 208-96-8 **Purity** 98%	(Lot L20W)	1,000.0 µg/mL	+/- 5.8143 +/- 30.2493 +/- 30.2493	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,3-Dinitrobenzene **CAS #** 99-65-0 **Purity** 99%	(Lot 1-DXX-24-1)	1,002.7 µg/mL	+/- 5.8296 +/- 30.3289 +/- 30.3289	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	Dimethylphthalate **CAS #** 131-11-3 **Purity** 99%	(Lot 10117699)	1,000.2 µg/mL	+/- 5.8154 +/- 30.2549 +/- 30.2549	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99%	(Lot BCBB8606)	1,001.3 µg/mL	+/- 5.8218 +/- 30.2885 +/- 30.2885	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	1,2-Dinitrobenzene		1,000.2	µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 528-29-0	(Lot MKCH6067)			+/-	30.2532	µg/mL	Unstressed
	Purity 99%				+/-	30.2532	µg/mL	Stressed
41	Acenaphthene		1,001.9	µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 83-32-9	(Lot MKCQ4733)			+/-	30.3053	µg/mL	Unstressed
	Purity 99%				+/-	30.3053	µg/mL	Stressed
42	3-Nitroaniline		1,000.7	µg/mL	+/-	5.8183	µg/mL	Gravimetric
	CAS # 99-09-2	(Lot MKCH5457)			+/-	30.2700	µg/mL	Unstressed
	Purity 99%				+/-	30.2700	µg/mL	Stressed
43	2,4-Dinitrophenol		1,001.3	µg/mL	+/-	5.8218	µg/mL	Gravimetric
	CAS # 51-28-5	(Lot STBH7564)			+/-	30.2885	µg/mL	Unstressed
	Purity 99%				+/-	30.2885	µg/mL	Stressed
44	Dibenzofuran		1,001.7	µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 132-64-9	(Lot MKCN1772)			+/-	30.3003	µg/mL	Unstressed
	Purity 99%				+/-	30.3003	µg/mL	Stressed
45	2,4-Dinitrotoluene		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
46	4-Nitrophenol		1,001.3	µg/mL	+/-	5.8215	µg/mL	Gravimetric
	CAS # 100-02-7	(Lot MKCF6111)			+/-	30.2868	µg/mL	Unstressed
	Purity 99%				+/-	30.2868	µg/mL	Stressed
47	2,3,4,6-Tetrachlorophenol		1,001.6	µg/mL	+/-	5.8235	µg/mL	Gravimetric
	CAS # 58-90-2	(Lot PR-30126)			+/-	30.2969	µg/mL	Unstressed
	Purity 99%				+/-	30.2969	µg/mL	Stressed
48	2,3,5,6-Tetrachlorophenol		1,000.3	µg/mL	+/-	5.8157	µg/mL	Gravimetric
	CAS # 935-95-5	(Lot 012016)			+/-	30.2566	µg/mL	Unstressed
	Purity 99%				+/-	30.2566	µg/mL	Stressed
49	Fluorene		1,002.0	µg/mL	+/-	5.8257	µg/mL	Gravimetric
	CAS # 86-73-7	(Lot 10236068)			+/-	30.3087	µg/mL	Unstressed
	Purity 99%				+/-	30.3087	µg/mL	Stressed
50	4-Chlorophenyl phenyl ether		1,001.7	µg/mL	+/-	5.8238	µg/mL	Gravimetric
	CAS # 7005-72-3	(Lot MKCQ0984)			+/-	30.2986	µg/mL	Unstressed
	Purity 99%				+/-	30.2986	µg/mL	Stressed
51	Diethylphthalate		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 84-66-2	(Lot BCCD3396)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
52	4-Nitroaniline		1,001.8	µg/mL	+/-	5.8247	µg/mL	Gravimetric
	CAS # 100-01-6	(Lot RP220302)			+/-	30.3036	µg/mL	Unstressed
	Purity 99%				+/-	30.3036	µg/mL	Stressed
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)		1,000.6	µg/mL	+/-	5.8176	µg/mL	Gravimetric
	CAS # 534-52-1	(Lot 220318SAM)			+/-	30.2667	µg/mL	Unstressed
	Purity 99%				+/-	30.2667	µg/mL	Stressed
54	Diphenylamine		1,002.4	µg/mL	+/-	5.8280	µg/mL	Gravimetric
	CAS # 122-39-4	(Lot MKCH1042)			+/-	30.3205	µg/mL	Unstressed
	Purity 99%				+/-	30.3205	µg/mL	Stressed
55	Azobenzene		1,000.4	µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 103-33-3	(Lot BCCC9136)			+/-	30.2616	µg/mL	Unstressed
	Purity 99%				+/-	30.2616	µg/mL	Stressed

56	4-Bromophenyl phenyl ether		1,001.7 µg/mL	+/-	5.8241	µg/mL	Gravimetric
	CAS # 101-55-3	(Lot STBH6361)		+/-	30.3003	µg/mL	Unstressed
	Purity 99%			+/-	30.3003	µg/mL	Stressed
57	Hexachlorobenzene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 118-74-1	(Lot 13027400)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
58	Pentachlorophenol		1,000.4 µg/mL	+/-	5.8167	µg/mL	Gravimetric
	CAS # 87-86-5	(Lot 211229RSR)		+/-	30.2616	µg/mL	Unstressed
	Purity 99%			+/-	30.2616	µg/mL	Stressed
59	Phenanthrene		1,000.8 µg/mL	+/-	5.8189	µg/mL	Gravimetric
	CAS # 85-01-8	(Lot MKCL7390)		+/-	30.2734	µg/mL	Unstressed
	Purity 99%			+/-	30.2734	µg/mL	Stressed
60	Anthracene		1,000.7 µg/mL	+/-	5.8180	µg/mL	Gravimetric
	CAS # 120-12-7	(Lot MKCN0922)		+/-	30.2684	µg/mL	Unstressed
	Purity 99%			+/-	30.2684	µg/mL	Stressed
61	Carbazole		1,002.1 µg/mL	+/-	5.8260	µg/mL	Gravimetric
	CAS # 86-74-8	(Lot 12549400)		+/-	30.3104	µg/mL	Unstressed
	Purity 99%			+/-	30.3104	µg/mL	Stressed
62	Di-n-butylphthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 84-74-2	(Lot MKCL9573)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
63	Fluoranthene		1,000.6 µg/mL	+/-	5.8173	µg/mL	Gravimetric
	CAS # 206-44-0	(Lot MKCQ4728)		+/-	30.2650	µg/mL	Unstressed
	Purity 99%			+/-	30.2650	µg/mL	Stressed
64	Pyrene		1,000.8 µg/mL	+/-	5.8186	µg/mL	Gravimetric
	CAS # 129-00-0	(Lot BCCG2258)		+/-	30.2717	µg/mL	Unstressed
	Purity 99%			+/-	30.2717	µg/mL	Stressed
65	Benzyl butyl phthalate		1,001.0 µg/mL	+/-	5.8199	µg/mL	Gravimetric
	CAS # 85-68-7	(Lot MKCN9008)		+/-	30.2784	µg/mL	Unstressed
	Purity 99%			+/-	30.2784	µg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,000.2 µg/mL	+/-	5.8151	µg/mL	Gravimetric
	CAS # 103-23-1	(Lot MKCM1988)		+/-	30.2532	µg/mL	Unstressed
	Purity 99%			+/-	30.2532	µg/mL	Stressed
67	Benz(a)anthracene		1,000.3 µg/mL	+/-	5.8159	µg/mL	Gravimetric
	CAS # 56-55-3	(Lot RP220209)		+/-	30.2579	µg/mL	Unstressed
	Purity 96%			+/-	30.2579	µg/mL	Stressed
68	Chrysene		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 218-01-9	(Lot 468677L08C)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,000.4 µg/mL	+/-	5.8163	µg/mL	Gravimetric
	CAS # 117-81-7	(Lot MKCQ3468)		+/-	30.2600	µg/mL	Unstressed
	Purity 99%			+/-	30.2600	µg/mL	Stressed
70	Di-n-octyl phthalate		1,001.9 µg/mL	+/-	5.8251	µg/mL	Gravimetric
	CAS # 117-84-0	(Lot 12382500)		+/-	30.3053	µg/mL	Unstressed
	Purity 99%			+/-	30.3053	µg/mL	Stressed
71	Benzo(b)fluoranthene		1,001.1 µg/mL	+/-	5.8202	µg/mL	Gravimetric
	CAS # 205-99-2	(Lot 012012B)		+/-	30.2801	µg/mL	Unstressed
	Purity 99%			+/-	30.2801	µg/mL	Stressed

72	Benzo(k)fluoranthene		1,000.8	µg/mL	+/- 5.8186	µg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012019K)			+/- 30.2717	µg/mL	Unstressed
	Purity 99%				+/- 30.2717	µg/mL	Stressed
73	Benzo(a)pyrene		1,000.9	µg/mL	+/- 5.8196	µg/mL	Gravimetric
	CAS # 50-32-8	(Lot Z8BKF)			+/- 30.2768	µg/mL	Unstressed
	Purity 99%				+/- 30.2768	µg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,001.2	µg/mL	+/- 5.8212	µg/mL	Gravimetric
	CAS # 193-39-5	(Lot 12-JKL-118-9)			+/- 30.2852	µg/mL	Unstressed
	Purity 99%				+/- 30.2852	µg/mL	Stressed
75	Dibenz(a,h)anthracene		1,000.3	µg/mL	+/- 5.8160	µg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/- 30.2583	µg/mL	Unstressed
	Purity 99%				+/- 30.2583	µg/mL	Stressed
76	Benzo(g,h,i)perylene		1,001.7	µg/mL	+/- 5.8238	µg/mL	Gravimetric
	CAS # 191-24-2	(Lot AVUAD)			+/- 30.2987	µg/mL	Unstressed
	Purity 98%				+/- 30.2987	µg/mL	Stressed

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

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

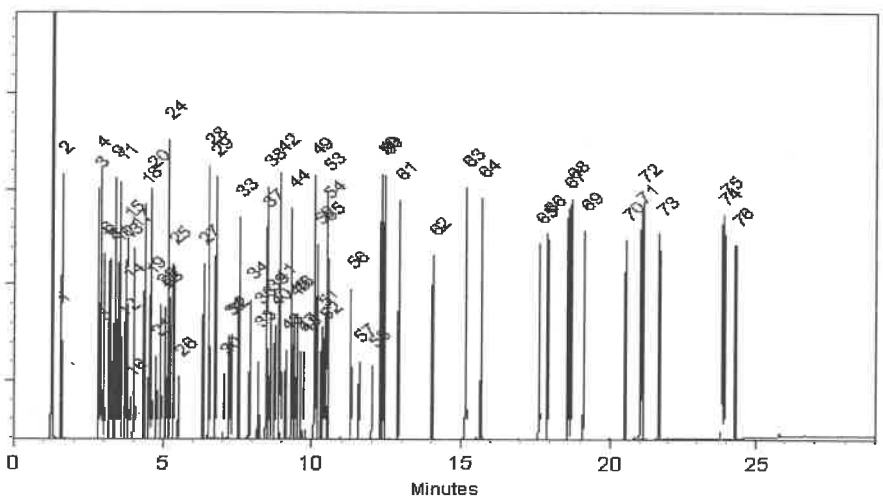
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

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

Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID



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

Cathleen Soltis - Mix Technician

Date Mixed: 13-May-2022 **Balance:** B442140311

Christie Mills - Operations Technician II

Date Passed: 02-Jun-2022

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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CERTIFIED REFERENCE MATERIAL

Gravimetric Certificate

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Received 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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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

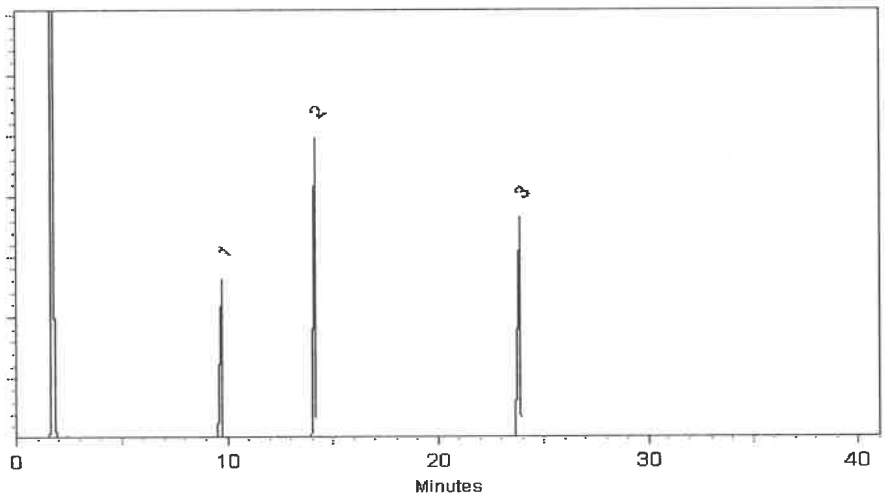
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

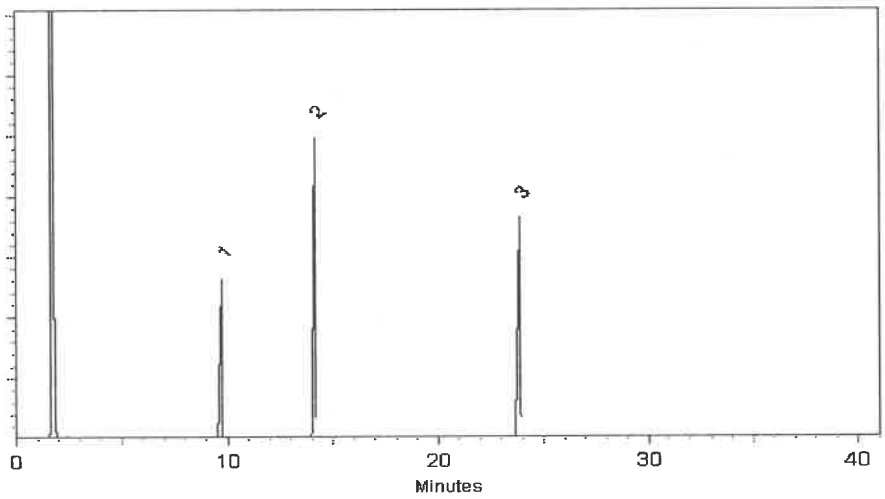
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

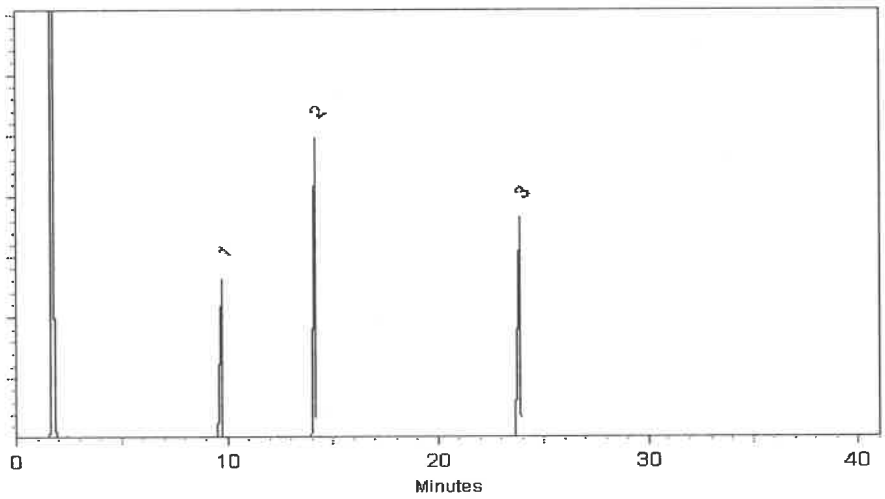
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

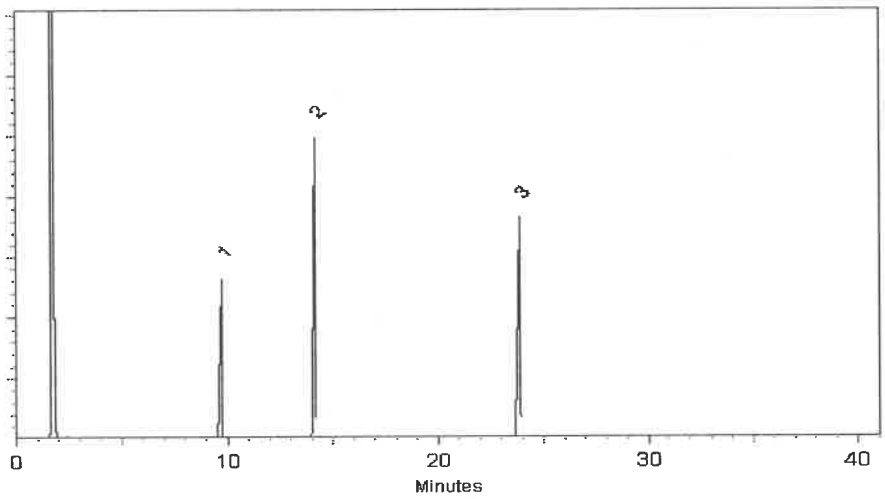
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

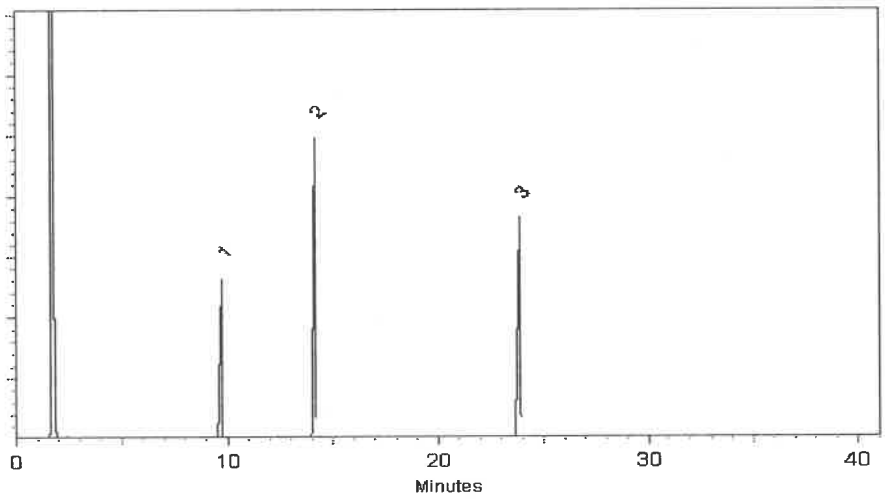
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

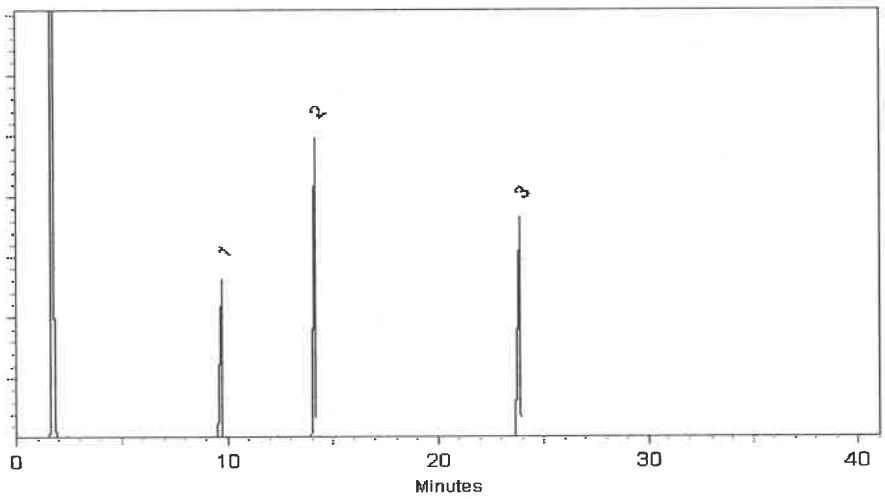
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

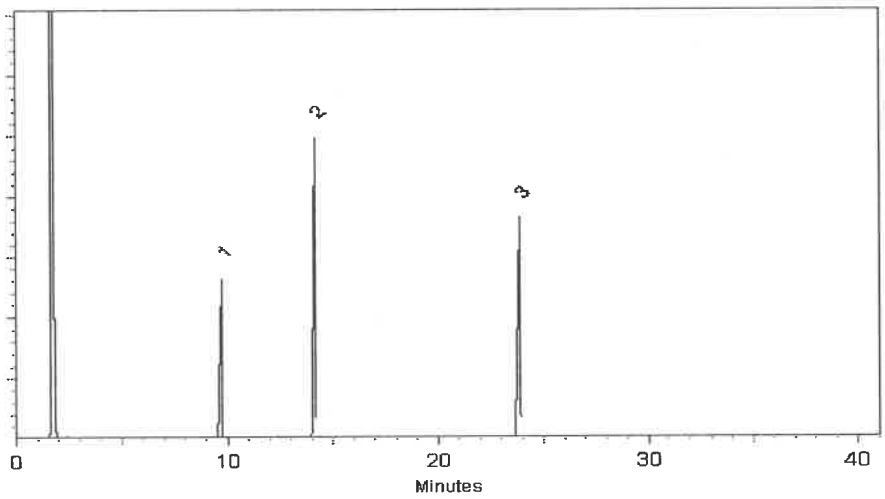
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

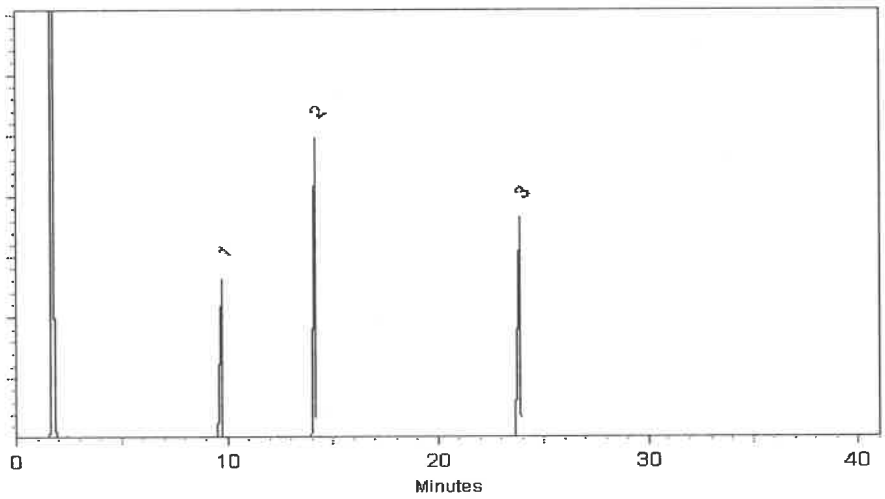
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Jess Hoy - Operations Tech I

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

Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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

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

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

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

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

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

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

CERTIFIED VALUES

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

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

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

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
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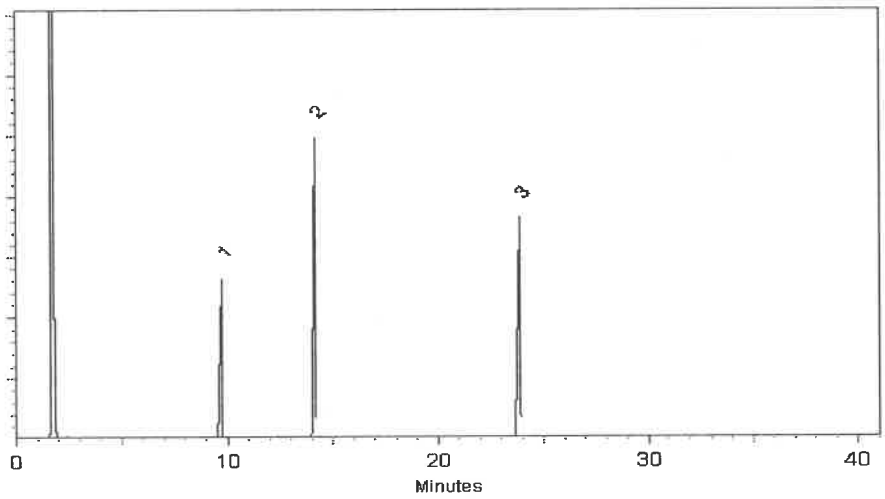

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Christie Mills - Operations Tech II - ARM QC

Date Passed: 15-Jun-2022

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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)

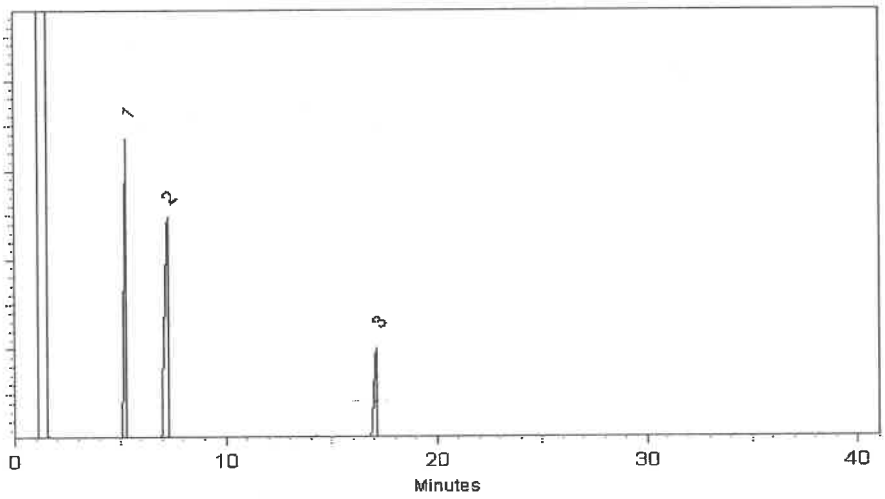
Carrier Gas:
hydrogen-constant pressure 10 psi.

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



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Morgan Craighead - Mix Technician

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 05-Aug-2022

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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
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Inj. Temp:
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Det. Temp:
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Det. Type:
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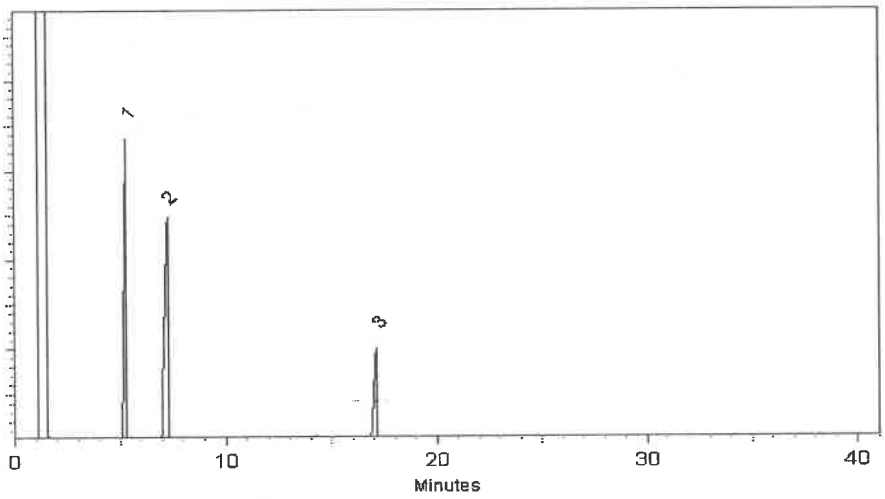

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Received by CG on 12/28/22 S10951 to S10980

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
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Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
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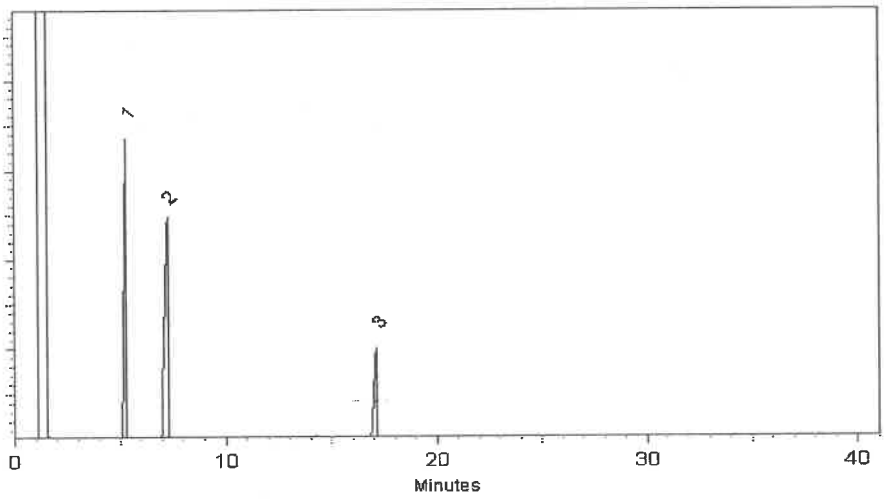

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Catalog No. : 31087 **Lot No.:** A0188108

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)

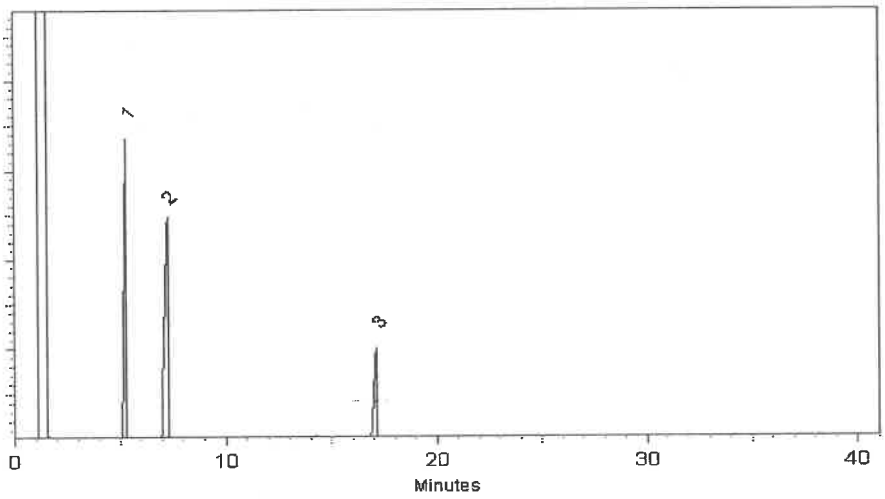
Carrier Gas:
hydrogen-constant pressure 10 psi.

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



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Morgan Craighead - Mix Technician

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

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 05-Aug-2022

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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:
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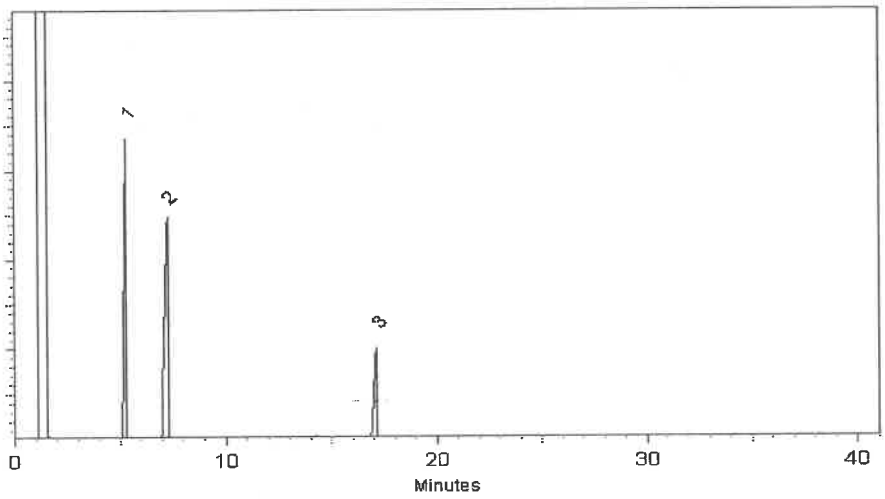

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Catalog No. : 31087 **Lot No.:** A0188108

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:
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@ 10°C/min. (hold 10 min.)

Inj. Temp:
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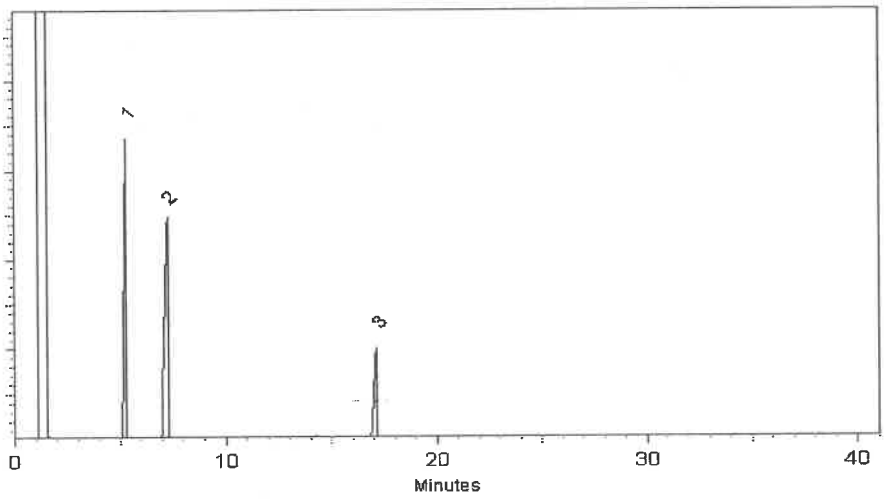

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Date Mixed: 02-Aug-2022 **Balance:** 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 05-Aug-2022

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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)

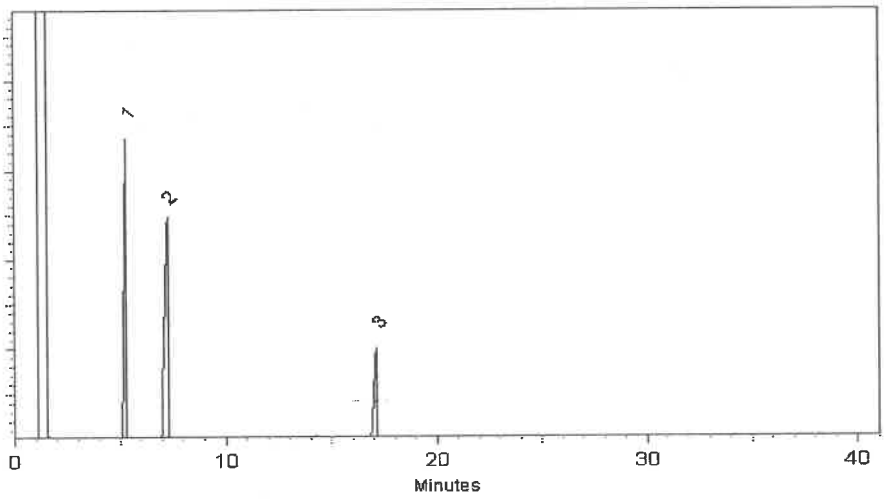
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

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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)

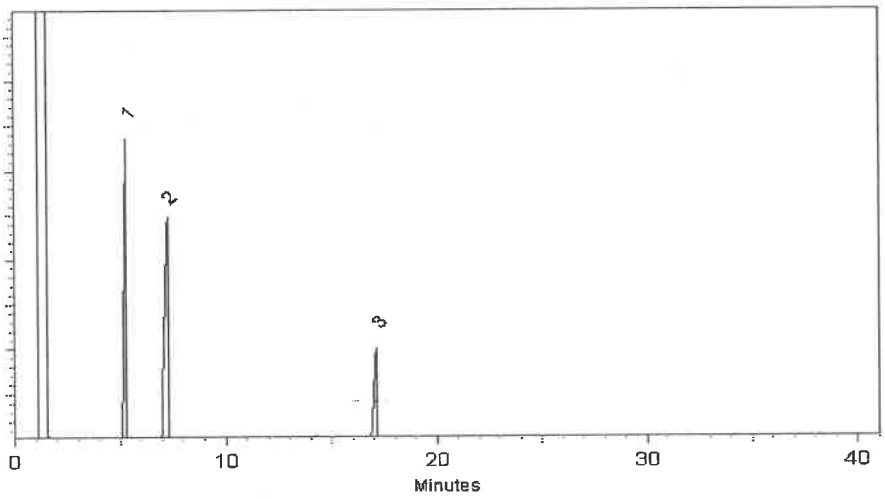
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

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Received on 02/06/23 by CG
S11046 to S11070

Catalog No. : 31853 **Lot No.:** A0189157

Description : 1,4-dioxane

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

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

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

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane	2,008.0 µg/mL	+/- 11.7841	µg/mL	Gravimetric
	CAS # 123-91-1 (Lot SHBN3770)		+/- 43.0214	µg/mL	Unstressed
	Purity 99%		+/- 44.2703	µg/mL	Stressed

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

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

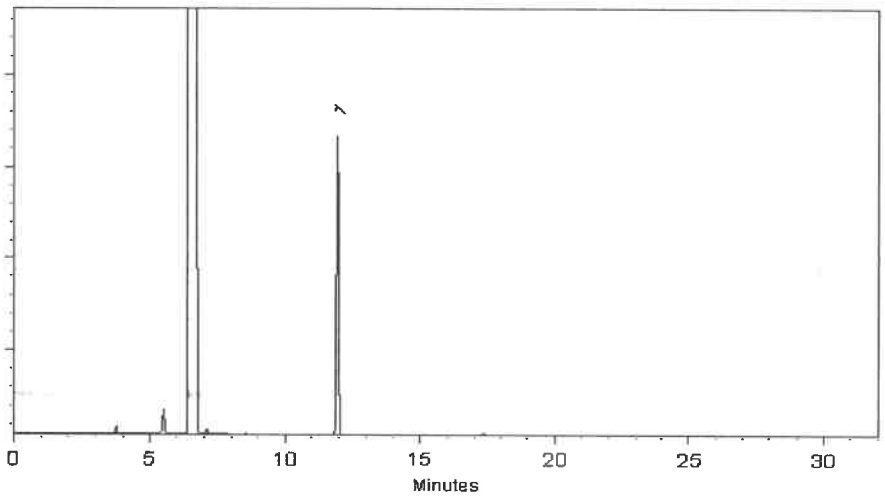
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

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

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



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

Amanda Miller - Operations Tech III - ARM QC

Date Mixed: 31-Aug-2022 **Balance:** B442140311

Christie Mills - Operations Tech II - ARM QC

Date Passed: 06-Sep-2022

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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 04/07/23 by CG S11194 to S11223

Catalog No. : 31206 **Lot No.:** A0191993

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 : October 31, 2028 **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%	2,011.1 µg/mL	+/- 90.5826
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,018.1 µg/mL	+/- 90.8949
3	Acenaphthene-d10	15067-26-2	PR-31822	99%	1,999.7 µg/mL	+/- 90.0662
4	Phenanthrene-d10	1517-22-2	PR-32303	99%	2,017.6 µg/mL	+/- 90.8739
5	Chrysene-d12	1719-03-5	PR-32210	99%	2,011.7 µg/mL	+/- 90.6067
6	Perylene-d12	1520-96-3	PR-33205	99%	2,007.4 µg/mL	+/- 90.4145

* 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.)

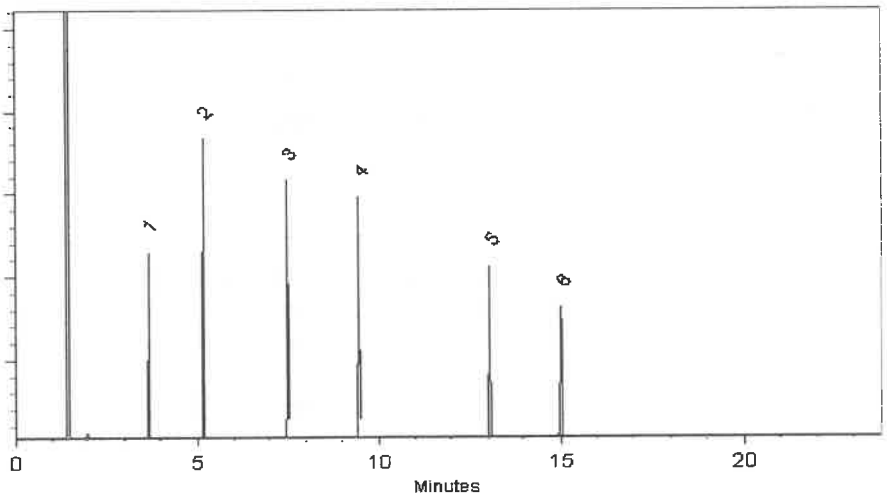
Inj. Temp:
250°C

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.

Alicia Leathers - Operation Technician I

Date Mixed: 28-Nov-2022 **Balance Serial #** 1128353505

Marlina Cowan – Operations Tech II ARM QC

Date Passed: 30-Nov-2022

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

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Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

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Received on 04/07/23 by CG S11194 to S11223

Catalog No. : 31206 **Lot No.:** A0191993

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 : October 31, 2028 **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%	2,011.1 µg/mL	+/- 90.5826
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,018.1 µg/mL	+/- 90.8949
3	Acenaphthene-d10	15067-26-2	PR-31822	99%	1,999.7 µg/mL	+/- 90.0662
4	Phenanthrene-d10	1517-22-2	PR-32303	99%	2,017.6 µg/mL	+/- 90.8739
5	Chrysene-d12	1719-03-5	PR-32210	99%	2,011.7 µg/mL	+/- 90.6067
6	Perylene-d12	1520-96-3	PR-33205	99%	2,007.4 µg/mL	+/- 90.4145

* 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.)

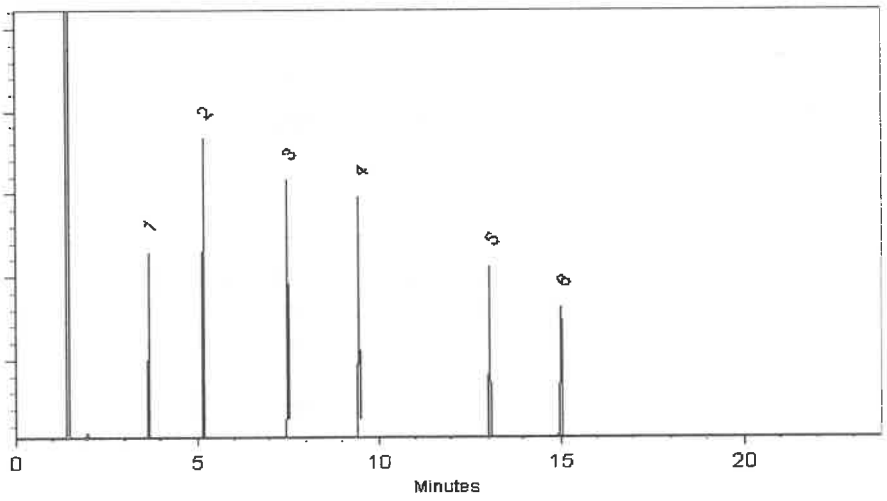
Inj. Temp:
250°C

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.

Alicia Leathers - Operation Technician I

Date Mixed: 28-Nov-2022 **Balance Serial #** 1128353505

Marlina Cowan – Operations Tech II ARM QC

Date Passed: 30-Nov-2022

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

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Rec
02

Catalog No. : 555223 **Lot No.:** A0194662

Description : Custom 8270 Plus Standard #1

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

S11

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

Expiration Date : February 28, 2025 **Storage:** 10°C or colder

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

S1

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	3,3'-Dichlorobenzidine	91-94-1	S221201RSR	99%	1,010.0 µg/mL
2	Atrazine	1912-24-9	PI8FG	99%	1,009.0 µg/mL
3	Benzidine	92-87-5	220511RSR	99%	1,007.0 µg/mL
4	epsilon-Caprolactam	105-60-2	I16X016	99%	1,006.0 µg/mL

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

Brittany Federinko - Operations Tech I

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

Manufactured under Restek 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 ɲ factor is used to calculate the amount of compound necessary to achieve the desired concentration of the ɪmpound in solution.

isomeric compounds is reported as the sum of the isomers.

ues are rounded to the nearest whole number.

rtainty Value Notes:

ɪrtainties 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:

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

ɜrage 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.

:

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 ı, 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 lards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom m. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, des complete instructions.

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

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Rec
02

Catalog No. : 555223 **Lot No.:** A0194662

Description : Custom 8270 Plus Standard #1

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

S11

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

Expiration Date : February 28, 2025 **Storage:** 10°C or colder

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

S1

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	3,3'-Dichlorobenzidine	91-94-1	S221201RSR	99%	1,010.0 µg/mL
2	Atrazine	1912-24-9	PI8FG	99%	1,009.0 µg/mL
3	Benzidine	92-87-5	220511RSR	99%	1,007.0 µg/mL
4	epsilon-Caprolactam	105-60-2	I16X016	99%	1,006.0 µg/mL

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

Brittany Federinko - Operations Tech I

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

Manufactured under Restek 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 ɲ factor is used to calculate the amount of compound necessary to achieve the desired concentration of the ɪmpound in solution.

isomeric compounds is reported as the sum of the isomers.

ues are rounded to the nearest whole number.

rtainty Value Notes:

ɪrtainties 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:

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

ɜrage 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.

:

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 ı, 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 lards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom m. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, des complete instructions.

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

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Rec
02

Catalog No. : 555223 **Lot No.:** A0194662

Description : Custom 8270 Plus Standard #1

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

S11

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

Expiration Date : February 28, 2025 **Storage:** 10°C or colder

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

S1

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	3,3'-Dichlorobenzidine	91-94-1	S221201RSR	99%	1,010.0 µg/mL
2	Atrazine	1912-24-9	PI8FG	99%	1,009.0 µg/mL
3	Benzidine	92-87-5	220511RSR	99%	1,007.0 µg/mL
4	epsilon-Caprolactam	105-60-2	I16X016	99%	1,006.0 µg/mL

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

Brittany Federinko - Operations Tech I

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

Manufactured under Restek 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 ɲ factor is used to calculate the amount of compound necessary to achieve the desired concentration of the ɪmpound in solution.

isomeric compounds is reported as the sum of the isomers.

ues are rounded to the nearest whole number.

rtainty Value Notes:

ɪrtainties 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:

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

ɜrage 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.

:

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 ı, 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 lards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom m. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, des complete instructions.

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

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Rec
02

Catalog No. : 555223 **Lot No.:** A0194662

Description : Custom 8270 Plus Standard #1

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

S11

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

Expiration Date : February 28, 2025 **Storage:** 10°C or colder

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

S1

CERTIFIED

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)
1	3,3'-Dichlorobenzidine	91-94-1	S221201RSR	99%	1,010.0 µg/mL
2	Atrazine	1912-24-9	PI8FG	99%	1,009.0 µg/mL
3	Benzidine	92-87-5	220511RSR	99%	1,007.0 µg/mL
4	epsilon-Caprolactam	105-60-2	I16X016	99%	1,006.0 µg/mL

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

Brittany Federinko - Operations Tech I

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

Manufactured under Restek 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.

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

gravimetric

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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Re

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

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Received on 03/06/23 by CG

S11164 to S11193

Catalog No. : 555224 **Lot No.:** A0194799

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 : February 28, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2,4,5-Tetrachlorobenzene	95-94-3	MKCS1444	99%	1,001.0 µg/mL	+/- 29.424320
2	Acetophenone	98-86-2	STBH8205	99%	1,009.0 µg/mL	+/- 29.659479
3	Benzaldehyde	100-52-7	RD230209RSRA	99%	1,002.0 µg/mL	+/- 29.453715
4	Benzoic acid	65-85-0	MKCL7479	99%	1,005.0 µg/mL	+/- 29.541899
5	Biphenyl	92-52-4	MKCL6515	99%	1,006.0 µg/mL	+/- 29.571294

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

Russ Bookhamer - Operations Technician I

Date Mixed: 17-Feb-2023 **Balance:** B442140311

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

General Certified Reference Material Notes

Expiration Notes:

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Purity Notes:

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Handling Notes:

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S11164 to S11193

Catalog No. : 555224 **Lot No.:** A0194799

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 : February 28, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2,4,5-Tetrachlorobenzene	95-94-3	MKCS1444	99%	1,001.0 µg/mL	+/- 29.424320
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Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Russ Bookhamer - Operations Technician I

Date Mixed: 17-Feb-2023 **Balance:** B442140311

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

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Catalog No. : 555224 **Lot No.:** A0194799

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 : February 28, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
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Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Russ Bookhamer - Operations Technician I

Date Mixed: 17-Feb-2023 **Balance:** B442140311

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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 : February 28, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Component #	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
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CAS # 75-09-2
Purity 99%

Russ Bookhamer - Operations Technician I

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Catalog No. : 555224 **Lot No.:** A0194799

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 : February 28, 2025 **Storage:** 10°C or colder

Ship: Ambient

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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%

Russ Bookhamer - Operations Technician I

Date Mixed: 17-Feb-2023 **Balance:** B442140311

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

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Sand
Purified
Washed and Ignited

avantor™ | J.T.Baker®

Material No.: 3382-05
Batch No.: 0000243821
Manufactured Date: 2018/04/09
Retest Date: 2025/04/07
Revision No: 1

Certificate of Analysis

Test	Specification	Result
Substances Soluble in HCl	<= 0.16 %	0.01

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

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

E 2865

James T Ethier

Jamie Ethier
Vice President Global Quality

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

PHARMCO
by Greenfield Global

CERTIFICATE OF ANALYSIS

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

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

Certification and Compliance Statements

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

E3382

Rec'd by RP on 08/03/22

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

ALLAN CHEMICAL CORPORATION
235 MARGARET KING AVENUE
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MIRADOR 201, COL. MIRADOR
MONTERREY, N.L. MÉXICO
CP 64070
TEL +52 81 13 52 57 57
www.pqm.com.mx

CERTIFICATE OF ANALYSIS

PRODUCT :	**SODIUM SULFATE CRYSTALS ANHYDROUS**		
QUALITY :	**ACS (CODE RMB3375)**	**FORMULA :**	**Na_2SO_4**
SPECIFICATION NUMBER :	**6399**	**RELEASE DATE:**	**OCT/28/2021**
LOT NUMBER :	**139404**		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na_2SO_4)	Min. 99.0%	99.8 %
pH of a 5% solution at 25ºC	5.2 - 9.2	6.0
Insoluble matter	Max. 0.01%	0.005 %
Loss on ignition	Max. 0.5%	0.1 %
Chloride (Cl)	Max. 0.001%	<0.001 %
Nitrogen compounds (as N)	Max. 5 ppm	<5 ppm
Phosphate (PO_4)	Max. 0.001%	<0.001 %
Heavy metals (as Pb)	Max. 5 ppm	<5 ppm
Iron (Fe)	Max. 0.001%	<0.001 %
Calcium (Ca)	Max. 0.01%	0.002 %
Magnesium (Mg)	Max. 0.005%	0.001 %
Potassium (K)	Max. 0.008%	0.002 %
Extraction-concentration suitability	Passes test	Passes test
Appearance	Passes test	Passes test
Identification	Passes test	Passes test
Solubility and foreing matter	Passes test	Passes test
Retained on US Standard No. 10 sieve	Max. 1%	0.2 %
Retained on US Standard No. 60 sieve	Min. 94%	97.6 %
Through US Standard No. 60 sieve	Max. 5%	2.1 %
Through US Standard No. 100 sieve	Max. 10%	0.2 %

COMMENTS

QC: PhC Irma Belmares

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

RE-02-01, Ed. 3

E 3412

Recd. by RP on 10/13/22

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 22L0562002
Manufactured Date: 2022-10-20
Expiration Date: 2024-01-19
Revision No.: 0

Certificate of Analysis

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

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

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

E 34 64

James T Ethier
Jamie Ethier
Vice President Global Quality

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

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 23C1362018
Manufactured Date: 2023-01-26
Expiration Date: 2024-04-26
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	5
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	0.9 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

E3515

James T Ethier
Jamie Ethier
Vice President Global Quality

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 23E0962014
Manufactured Date: 2023-04-24
Expiration Date: 2024-07-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	2
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	6
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	< 0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

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

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

E3518

Ken Koehnlein
Sr. Manager, Quality Assurance

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Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

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

Certificate of Analysis

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

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

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

Recd. by RP On 6/13/23

E3519

James T Ethier
Jamie Ethier
Vice President Global Quality

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

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 23E0962014
Manufactured Date: 2023-04-24
Expiration Date: 2024-07-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	2
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	6
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	< 0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

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

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

E3521

Ken Koehnlein
Sr. Manager, Quality Assurance

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Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 22L2862006
Manufactured Date: 2022-12-19
Expiration Date: 2025-12-18
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	0.2 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	4

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

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

Recd. by RP on 6/21/23

E3523

James T Ethier
Jamie Ethier
Vice President Global Quality

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

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 22L2862006
Manufactured Date: 2022-12-19
Expiration Date: 2025-12-18
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	0.2 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	4

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

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

Recd. by RS on 6/29/23

E 3534

James T Ethier
Jamie Ethier
Vice President Global Quality

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PO: 230629-01 PRODUCT CODE: SHIP DATE: 7/12/2023

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

avantor™ | J.T.Baker

Material No.: 9266-A4
Batch No.: 23F1262016
Manufactured Date: 2023-05-17
Expiration Date: 2024-08-15
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	4
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	< 1.0 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: MG23E17953

E 3543

Ken Koehnlein
Sr. Manager, Quality Assurance

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

M5210 - M5217
MB

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 22D0862014
Manufactured Date: 2022-02-23
Retest Date: 2027-02-22
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS - Assay (H_2SO_4)	95.0 - 98.0 %	96.5 %
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	1.7 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 2.0 ppb	< 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	< 0.2 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities - Iron (Fe)	≤ 50.0 ppb	2.0 ppb
Trace Impurities - Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities - Magnesium (Mg)	≤ 7.0 ppb	0.6 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	12.1 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	4.4 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.: 22D0862014

Test	Specification	Result
Trace Impurities - Sodium (Na)	≤ 500.0 ppb	6.2 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	0.6 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

511409 J.Y.P. 06/12/23

CPI INTERNATIONAL

5580 Skylane Blvd
Santa Rosa, CA 95403

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

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

Date Received: _____

Certificate of Analysis

Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Exp. Date:	Description:
Z-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.