

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

8900, Fax: 908 789 8922

Prep Standard - Chemical Standard Summary

Order ID :	Q1328
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Test: SVOC-Chemtech Full -25

Prepbatch ID: PB166653,

Sequence ID/Qc Batch ID: BP021125,

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SIA	mo	ы	ra	- 11	u	-

EP2582,EP2585,SP6633,SP6689,SP6690,SP6691,SP6692,SP6693,SP6694,SP6695,SP6696,SP6697,

Chemical ID:

10ul/1000ul

sample, E3551, E3794, E3829, E3873, E3874, S10181, S10711, S11074, S11538, S11681, S11682, S11708, S11780, S12068, S12142, S12240, S12260, S12302, S12303, S12328, S12469, S12470, S12517, S12606, S12648, S12771, S12800, S12648, S



Aliance

Fax: 908 789 8922

Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By RUPESHKUMAR
2017	1:1 ACETONE/METHYLENE CHLORIDE	EP2582	02/04/2025	07/29/2025	Rajesh Parikh	None	None	SHAH 02/04/2025

Recipe				Expiration	<u>Prepared</u>			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	RUPESHKUMAR
3923	Baked Sodium Sulfate	EP2585	02/07/2025	07/01/2025	Rajesh Parikh	Extraction_SC	None	SHAH
						ALE_2		02/07/2025

FROM 4000.0000gram of E3551 = Final Quantity: 4000.000 gram





SVOC STANDARD PREPARATION LOG

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By Yogesh Patel
4038	SFAM Tune 50ng/ul DFTPP	<u>SP6633</u>	09/20/2024	02/28/2025	Rahul Chavli	None	None	09/26/2024

FROM 0.10000ml of S10181 + 4.90000ml of E3794 = Final Quantity: 5.000 ml

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Yogesh Patel
3858	SFAM ICALSTOCK 200ppm: 57.70 ml	<u>SP6689</u>	11/26/2024	04/15/2025	Jagrut Upadhyay	None	None	12/16/2024

FROM

 $0.20000ml\ of\ E3829+0.20000ml\ of\ S11682+0.20000ml\ of\ S11708+0.20000ml\ of\ S11780+0.20000ml\ of\ S12240+0.20000ml\ of\ S12260+0.30000ml\ of\ S12302+0.50000ml\ of\ S1258+0.50000ml\ of\ S12068+0.50000ml\ of\ S12606+0.50000ml\ of\ S12606+0.500000ml\ of\ S12606+0.50000ml\ of\ S12606$

0.50000ml of S12771 + 0.70000ml of S12303 + 0.80000ml of S11681 = Final Quantity: 5.000 ml





SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Yogesh Patel
3859	SFAM SSTD005	<u>SP6690</u>	11/26/2024	04/15/2025	Jagrut Upadhyay	None	None	12/16/2024

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Yogesh Patel
3860	SFAM SSTD010	SP6691	11/26/2024	04/15/2025	Jagrut	None	None	
					Upadhyay			12/16/2024

FROM 0.01000ml of S12328 + 0.95000ml of E3829 + 0.05000ml of SP6689 = Final Quantity: 1.010 ml





SVOC STANDARD PREPARATION LOG

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Yogesh Patel
3861	SFAM SSTD020	<u>SP6692</u>	11/26/2024	04/15/2025	Jagrut Upadhyay	None	None	12/16/2024
					, ,,			12/10/2024

FROM 0.01000ml of S12328 + 0.90000ml of E3829 + 0.10000ml of SP6689 = Final Quantity: 1.010 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	NAME.	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Yogesh Patel
3862	SFAM SSTD040	SP6693	11/26/2024	04/15/2025	Jagrut	None	None	-
					Upadhyay			12/16/2024

FROM 0.01000ml of S12328 + 0.80000ml of E3829 + 0.20000ml of SP6689 = Final Quantity: 1.010 ml





SVOC STANDARD PREPARATION LOG

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Yogesh Patel
3863	SFAM SSTD080	<u>SP6694</u>	11/26/2024	04/15/2025	Jagrut Upadhyay	None	None	12/16/2024

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Yogesh Patel
3864	SFAM SSTD160	<u>SP6695</u>	11/26/2024	04/15/2025	Jagrut Upadhyay	None	None	12/16/2024

FROM 0.01000ml of S12328 + 0.20000ml of E3829 + 0.80000ml of SP6689 = Final Quantity: 1.010 ml



 $284 \; Sheffield \; Street, \; Mountainside, \; New \; Jersey \; 07092, \; Phone \; : \; 908 \; 789 \; 8900, \\$

Fax: 908 789 8922

SVOC STANDARD PREPARATION LOG

Recipe ID	NAME.	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Yogesh Patel
3865	SFAM ICV STOCK 200 PPM 2.0ml	<u>SP6696</u>	11/26/2024	03/09/2025	Jagrut Upadhyay	None	None	12/16/2024

FROM

 $0.04000 ml \ of \ E3829 + 0.04000 ml \ of \ S10711 + 0.04000 ml \ of \ S11074 + 0.04000 ml \ of \ S11708 + 0.04000 ml \ of \ S12800 + 0.10000 ml \ of \ S12068 + 0.10000 ml \ of \ S12469 + 0.10000 ml \ of \ S12470 + 0.10000 ml \ of \ S12517 = Final \ Quantity: 1.000 \ ml$

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Yogesh Patel
3866	SFAM ICV 20 PPM	SP6697	11/26/2024	03/09/2025	Jagrut	None	None	Ü
					Upadhyay			12/16/2024

FROM 0.01000ml of S12328 + 0.90000ml of E3829 + 0.10000ml of SP6696 = Final Quantity: 1.010 ml



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1	313201	07/01/2025	01/03/2024 / Rajesh	07/20/2023 / Rajesh	E3551
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	24G2362009	03/17/2025	09/17/2024 / Rajesh	09/03/2024 / Rajesh	E3794
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)	24J0862003	05/18/2025	11/18/2024 / Rajesh	11/04/2024 / Rajesh	E3829
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)	24H2762008	07/29/2025	01/29/2025 / Rajesh	01/29/2025 / Rajesh	E3873
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)	25A0262002	07/30/2025	01/30/2025 / Rajesh	01/20/2025 / Rajesh	E3874
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31001 / SV Tuning	A0182099	02/28/2025	09/20/2024 /	03/02/2022 /	S10181



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	98496 / 1,2,3,4-Tetrachlorobenzene, 5000 ug/mL, in MeCl2	042221	03/09/2025	09/09/2024 / Jagrut	08/23/2022 / Christian	S10711
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0187043	05/15/2025	11/15/2024 / Jagrut	02/06/2023 / Christian	S11074
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30409 / Pyridine, 2000 PPM in P & T Methanol	A0196693	05/26/2025	11/26/2024 / Jagrut	08/31/2023 / Yogesh	S11538
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31900 / SOM01.1 Mega Mix, 500-1000 ug/ml	A0204128	05/08/2025	11/08/2024 / Jagrut	11/13/2023 / Rahul	S11681
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	31900 / SOM01.1 Mega Mix, 500-1000 ug/ml	A0204128	05/26/2025	11/26/2024 / Jagrut	11/13/2023 / Rahul	S11682
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30614 / 1,4-Dioxane-D8 Standard	A0199745	05/26/2025	11/26/2024 / Jagrut	11/20/2023 / Rahul	S11708



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31853 / 1,4-Dioxane, 2000 ug/ml , Solvent: Methylene Chloride	A0196453	05/14/2025	11/14/2024 / Jagrut	11/21/2023 / Rahul	S11780
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31046 / Pyridine-d5, Solvent Methylene Chloride, 2000 ug/L	A0205496	05/18/2025	11/18/2024 / anahy	12/21/2023 / Rahul	S12068
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	31850 / 8270 SV Mix, 8270 Mega Mix 1mL, 1000ug/mL, CH2Cl2 [New Solvent 100% CH2Cl2]	A0203726	04/30/2025	11/14/2024 / anahy	03/15/2024 / Rahul	S12142
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	98496 / 1,2,3,4-Tetrachlorobenzene, 5000 ug/mL, in MeCl2	040524	05/08/2025	11/08/2024 / Jagrut	04/11/2024 / Rahul	S12240
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	98495 / Pentachlorobenzene, 5000 ug/mL, in MeCl2	111722	05/08/2025	11/08/2024 / Jagrut	05/15/2024 / Rahul	S12260
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31902 / CLP/SVOA Additions Mix (Atrazine, Benzaldehyde,	A0206859	04/15/2025	10/15/2024 / anahy	05/30/2024 / Rahul	S12302



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31902 / CLP/SVOA Additions Mix (Atrazine, Benzaldehyde, Caprolactam) 1000ug/mL	A0206859	05/26/2025	11/26/2024 / Jagrut	05/30/2024 / Rahul	S12303
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	A0206540	05/13/2025	11/13/2024 / anahy	05/30/2024 / Rahul	S12328
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at \$100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0214021	05/14/2025	11/14/2024 / anahy	07/23/2024 / RAHUL	S12469
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555223 / Custom 8270 Plus Std #1 [2nd lot at \$100 per ampul if requested - contact ARM with Request] [CS 4978-1]	A0214021	05/26/2025	11/26/2024 / Jagrut	07/23/2024 / RAHUL	S12470
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555224 / Custom 8270 Plus Std #2 [2nd lot at \$85 per ampul if requested - contact ARM with Request] [CS 4978-2]	A0214017	05/14/2025	11/14/2024 / anahy	07/23/2024 / RAHUL	S12517
Ourselles		1 -4 #	Expiration	Date Opened /	Received Date /	Chemtech
Supplier	ItemCode / ItemName	Lot #	Date	Opened By	Received By	Lot #
Restek	31810 / SV Mix, OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL, 2000ug/mL, CH2Cl2	A0213304	05/18/2025	11/18/2024 / anahy	08/07/2024 / anahy	S12606



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31206 / SV Mix, CLP method, Internal Std, 2000ug/mL, CH2Cl2, 1mL	A0212266	07/20/2025	01/20/2025 / anahy	09/20/2024 / anahy	S12648

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90494 / 1-Methylnaphthalene, 2000 ug/mL, in methylene chloride	061323	05/08/2025	11/08/2024 / Jagrut	11/08/2024 / anahy	S12771

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	98495 / Pentachlorobenzene, 5000 ug/mL, in MeCl2	111324	05/26/2025	11/26/2024 / Jagrut	11/14/2024 / anahy	S12800

800-368-1131 Absolute Standards, Inc.

www.absolutestandards.com



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

Part Number: Lot Number: Description: 98496 042221 1,2,3,4-Tetrachlorobenzene Methylene chloride Solvent(s):

> 105345 Lot#

ormulated By

Prashant Chauhan

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042221

DATE

Expiration Date: 042226

Nominal Concentration (µg/mL): Recommended Storage: NIST Test ID#: **BTU9** 5000 Refrigerate (4 °C)

Weight(s) shown below were combined and diluted to (mL): 20.0

1,2,3,4-Tetrachlorobenzene

318

FBW01

5000

97.3

0.2

0.058 Flask Uncertainty 5E-05 Balance Uncertainty

Reviewed By:

Pedro L. Rentas

042221 DATE

P.V.# Number ĕ Conc (µg/mL) Nominal Purity 8 Uncertainty Purity Weight(g) Target Weight(g) Actual Conc (µg/mL) (+/-) (µg/mL) Actual Uncertainty Expanded (Solvent Safety Info. On Attached pg.) CAS# SDS Information OSHA PEL (TWA)

300°C. Analysis performed by Nicole Poisson. Method GC8MSD-3.M: Column: (30m X 0.25mm ID X 0.25\m film thickness), Temp 1 = 50°C (1min.), Temp 2 = 300°C (4 min.), Rate = 10°C/min., Injector B = 200°C, Detector B = 0.10292 0.10300 5003.7 36.0 634-66-2 orl-rat 1167mg/kg

Abundance Time---1200000 1400000 2000000 2200000 2400000 2800000 3000000 3200000 1000000 1600000 1800000 2600000 200000 400000 800000 800000 5.00 10.00 The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certified (4/-) 0.5% of the stated value, unless otherwise stated. TIC: [8582]70318.D 15.00 20.00 25.00 30.00 Abundance m/z-->0 550000 100000 150000 200000 250000 300000 350000 400000 450000 500000 50000 35 37 49 60 9 Scan 599 (12.055 min): [BSB2]70318.D 74 80 20 96 8 108 118 120 3 140 143 154 167 160 179 180 190 209 222 276 902015 510712 1986/380 Keceive 49

All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



CERTIFIED REFERENCE MATERIAL



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

Certificate of Analysis





www.restek.com

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

Catalog No.:

31001

Lot No.: A0182099

03/02/22

Description:

SV Tuning Compound Standard

by

Tuning Std Decafluorotriphenylphosphine 2500µg/mL, Methylene

CG

Chloride, 1mL/ampul

S 10176

Container Size: Expiration Date: 2 mL February 28, 2025 Pkg Amt: > 1 mL Storage:

Ambient

10°C or colder

40 181012

Ship:

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	DFTPP (Decafluorotriphenylphosphine) CAS # 5074-71-5 (Lot Q117-147) Purity 95%	2,503.6 μg/mL	+/- 14.8708 μg/mL Gravimetric +/- 112.8060 μg/mL Unstressed +/- 125.1637 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 pressure 10 psi.

Temp. Program:

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

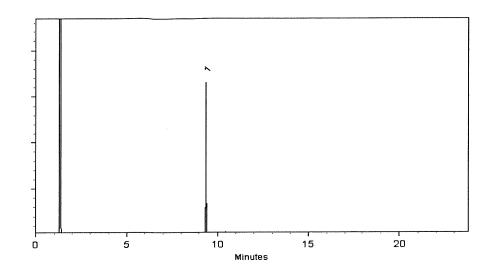
Inj. Temp:

250°C

Det. Temp:

330°C

Det. Type:



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:

21-Feb-2022

Balance: 1128353505

Marlina Shan
Marlina Cowan - Operations Tech I

Date Passed: 25-Feb-2022

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



CERTIFIED REFERENCE MATERIAL



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

Certificate of Analysis





www.restek.com

Catalog No.:

Expiration Date:

Purity

99%

Description:

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.

31853 Lot No.: A0187043

1,4-dioxane

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

Container Size: 2 mL

July 31, 2027

Pkg Amt: > 1 mL

0°C or colder Storage:

> Ship: Ambient

Received on 02/06/23

C6

S 11071

S11075

CERTIFIED VALUES

Elution Order		Compound	Grav. Conc. (weight/volume)		Expanded (95% C.L.;	Uncertainty K=2)	
1	1,4-Dioxane CAS# 123-91-1 Purity 99%	(Lot SHBN5929)	2,019.0 μg/mL	+/- +/- +/-	11.8486 43.2570 44.5129	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	Methylene chloride CAS # 75-09-2						

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.)

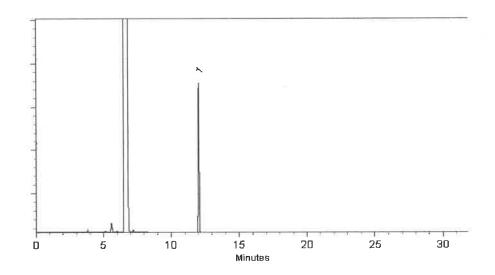
Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:



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

Brittany Federinko - Operations Tech I

Date Mixed:

07-Jul-2022

Balance: 1128360905

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

12-Jul-2022

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



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

CERTIFICATE OF ANALYSIS

PRODUCT:

SODIUM SULFATE CRYSTALS ANHYDROUS

QUALITY:

ACS (CODE RMB3375)

FORMULA:

Na₂SO₄

SPECIFICATION NUMBER: 6399

RELEASE DATE:

ABR/21/2023

LOT NUMBER:

313201

Segment Service Servic	SPECIFICATIONS	LOT VALUES
Assay (Na ₂ SO ₄)	Min. 99.0%	99.7 %
pH of a 5% solution at 25°C	5.2 - 9.2	6.1
insoluble matter	Max. 0.01%	0.005 %
Loss on ignition	Max. 0.5%	0.1 %
Chloride (Cl)	Max. 0.001%	<0.001 %
Nitrogen compounds (as N)	Max. 5 ppm	<5 ppm
Phosphate (PO ₄)	Max. 0.001%	<0.001 %
Heavy metals (as Pb)	Max. 5 ppm	<5 ppm
Iron (Fe)	Max. 0.001%	<0.001 %
Calcium (Ca)	Max. 0.01%	0.002 %
Magnesium (Mg)	Max. 0.005%	0.001 %
Potassium (K)	Max. 0.008%	0.003 %
Extraction-concentration suitability	Passes test	Passes test
Appearance	Passes test	Passes test
Identification	Passes test	Passes test
Solubility and foreing matter	Passes test	Passes test
Retained on US Standard No. 10 sieve	Max. 1%	0.1 %
Retained on US Standard No. 60 sieve	Min. 94%	97.3 %
Through US Standard No. 60 sieve	Max. 5%	2.5 %
Through US Standard No. 100 sieve	Max. 10%	0.1 %

COMMENTS

QC: PhC Irma Belmares

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

Recd. by Ri on 7/4/3 E 3551

RE-02-01, Del

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



Material No.: 9266-A4

Batch No.: 24J0862003

Manufactured Date: 2024-09-12

Expiration Date:2025-12-12

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 HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	1
Assay (CH ₂ Cl ₂) (by GC, exclusive of preservative, corrected for water)	>= 99.8 %	100.0 %
Color (APHA)	<= 10	r
Residue after Evaporation	<= 1.0 ppm	5
Fitrable Acid (μeq/g)	<= 0.3	0.2 ppm
Chloride (CI)	<= 10 ppm	<0.1
Nater (by KF, coulometric)	<= 0.02 %	<5 ppm <0.01 %

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

Country of Origin: United States

Packaging Site: Phillipsburg Mfg Ctr & DC

E 3829

Elioak

Director Quality Operations, Bioscience Production

Acetone BAKER RESI-ANALYZED® Reagent For Organic Residue Analysis





Material No.: 9254-03

Batch No.: 24H2762008

Manufactured Date: 2024-04-18

Expiration Date:2027-04-18

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ((CH ₃) ₂ CO) (by GC, corrected forwater)	>= 99.4 %	100.0 %
Color (APHA)	<= 10	5
Residue after Evaporation	<= 1.0 ppm	0.0 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	<= 0.3	0.2
Titrable Base (µeq/g)	<= 0.6	<0.1
Water (H₂O)	<= 0.5 %	
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	<0.1 %
ECD Sensitive Impurities (as HentachlorEnovide) Single Beats	<= 10	1

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

Country of Origin: United States

Packaging Site: Phillipsburg Mfg Ctr & DC

Recd. 57 Rp on 1/29/25



Director Quality Operations, Bioscience Production

PO: PO2-1178.2 PRODUCT CODE: SHIP DATE: 1/20/2025

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



Material No.: 9266-A4

Batch No.: 25A0262002

Manufactured Date: 2024-11-21

Expiration Date:2026-02-20

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)		1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	4
Assay (CH2Cl2) (by GC, exclusive of preservative, corrected for water)	>= 99.8 %	99.9 %
Color (APHA)	<= 10	10
Residue after Evaporation	<= 1.0 ppm	0.8 ppm
itrable Acid (µeq/g)	<= 0.3	<0.1
Chloride (CI)	<= 10 ppm	<5 ppm
Vater (by KF, coulometric)	<= 0.02 %	<0.01 %

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

Country of Origin: United States

Packaging Site: Phillipsburg Mfg Ctr & DC

E 3874



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



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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus









FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Description: Catalog No.: 30409 Pyridine Standard Lot No.: A0196693

Pyridine 2000µg/mL, P&T Methanol, 1mL/ampul

Expiration Date: Container Size : 2 mL January 31, 2027 Pkg Amt: Storage: > 1 mL 0°C or colder

Ship:

Ambient

O ERTIFIED VALUES

1	Elution Order
Pyridine	
	Compound
110-86-1	CAS#
110-86-1 SHBN7324	Lot#
99%	Purity
2,012.0 μg/mL	Grav. Conc. (weight/volume)
+/- 32.9613	Expanded Uncertainty (95% C.L.; K=2)

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

Solvent: P&T Methanol

CAS# 67-56-1

Purity

99%

Quality Confirmation Test



hydrogen-constant pressure 11.0 psi. Carrier Gas:

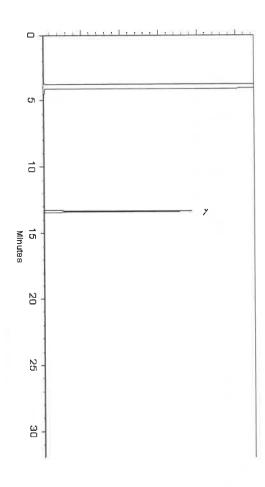
Inj. Temp: @ 8°C/min. (hold 5 min.) Temp. Program: 40°C (hold 2 min.) to 240°C

Det. Temp: 250°C 200°C

Det. Type:

Split Vent:

Inj. Vol 40 ml/min



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

Daniel Wasson - Operations Tech I

Date Mixed:

05-Apr-2023

Balance Serial #

1128342314

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

12-Apr-2023

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



General Certified Reference Material Notes

Expiration Notes:

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

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.
- parent compound in solution. correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. ⊳
- 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:

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

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

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

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

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:

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





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CERTIFIED REFERENCE MATERIAL







Certificate of Analysis

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.

Lot No.: A0204128

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

Catalog No.:

31900

Description:

2 mL

Pkg Amt: > 1 mL Storage: 0°C or colder

Ship: Ambient

Container Size : Expiration Date : Handling:

Sonication required. Mix is photosensitive. May 31, 2025

511669

511688 RC 1/15/23

CERTIFIED VALUES

10		15	14	13		170	11	10 3-	9		8 Z	7 He	6 Ac		5 2-1	4 2,2"	3 2-CI	2 Bis(1 rucuon	Dhon	Elution Order	<u> </u>
Ly Louise - I	2 4-Dichlorophenol	Bis(2-chloroethoxy)methane	2,4-Dimethylphenol	2-N100pusuos	AT Landson	Isophorone	Nitrobenzene	3-Methylphenol (m-cresor)	MICHAIL AND AND COLON	A Methylphenol (p-cresol)	N-Nitroso-di-n-propylamine	Hexachloroethane	Acetopnenous		2-Methylphenol (o-cresol)	2,2'-oxybis(1-chloropropane)	2-Chlorophenol	Bis(2-chloroethyl)euter	IV.	0.1	Composition	October
	120-83-2	100 00 0	111-91-1	105-67-9	88-75-5		78-59-1	98-95-3	108-39-4	100-44-5	100 44 5	621-64-7	67-72-1	7-98-86		95-48-7	108-60-1	95-57-8	111-44-4	100-77-2	100 05-2	CAS#
	b Court	BCBZ6787	13670200	XW5GK	RP230509C	20000	MKCC9506	10224044	STBJ0710		SHRN1151	N63MG	QTORH	OIDIRORGO	CTRH8205	SHBN7598	230714JLM	STBJ3909	SHBL6942		MKCK1120	Lot#
		99%	99%	99%		200%	99%	99%	99%	200/	99%	99%	99%		99%	99%	99%	99%	99%	- 1	99%	Purity
			1	1	1	- 1	1,000.7	1,001.1	0	504 4	503.6	1,003.2	1,000.8		1,004.0	1,007.3	1,001.2	1,002.8 µ		1 001 0 11	1,005.8 μ	Grav. Conc. (weight/volume)
		1,007.0 µg/mL	1,001.2 µg/mL	1,000.0 hg,n,n	Indian	1,004.4 µg/mL	mg/mL	µg/mL	9	liø/mL	μg/mL	µg/mL	ma/ari		μg/mL	μg/mL	µg/mL	μg/mL	, di	m/mL	μg/mL	nc. ume)
		-/- 18.9103 -/-			+/- 18.8787	+/- 18.8670	+/- 18.7902	10.000	+/_ 18 8045	+/- 9.4746	+/- 9.4605	T/- 10.011)	100110	+/- 18 7991	+/- 18.5897	+/- 18.9210	+/- 18.8004	1/- 10.0004	1/ 18 8365	+/- 18.8034	+/- 18.8928	Uncertainty * (95% C.L.; K=2)

01-Nov-2022 rev.

	52		2 8	\$ 4	5 6	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	31 30	3 3	2 0	20 5	3 5	3 8	2 2	2 1	23	22	21	20	19	18
	Fluoranthene	Di-n-butylphthalate	Carbazole	Anthracene	Phenanthrene	i cutaentorophenol	The state of the s	Herschlard Proposition of the Hersch	4-Romanhand	Diphenylamine	4,6-Dinitro-2-methylphenol /D:	4-Nitroaniline	Diethylphthalate	4-Chlorophenyl phonyl	Fluorenc	2,3,4,6-Tetrachlorophenol	4-Nitrophenol	2,4-Dinitrotoluene	Dibenzofuran	2,4-Dinitrophenol	3-Nitroaniline	Acenaphthene	2,6-Dinitrotoluene	Dimethylphthalate	Acenaphthylene	2-Nitroaniline	Biphenyl	2-Chloronaphthalene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	nexachlorocyclopentadiene	1,2,4,5-letrachlorobenzene	10.4.6.7	4.Chlory 2	2-Methylmanhetal	Hexachlorobutadiene	4-Chloroaniline
206-44-0 N				7	85-01-8	87-86-5	118-74-1	101-55-3	122-39-4	534-52-1	100-01-6	84-66-2	7005-72-3	86-73-7	58-90-2	100-02-7	121-14-2	132-64-9	51-28-5	99-09-2	00-32-9	83_37_0	506.303	131-11-3	208-96-8	88-74-4	92-52-4	91-58-7	95-95-4	88-06-2	77.47.4	95-94-3	59-50-7	91-57-6	87-68-3	106-47-8	91-20-3
MKCQ4728	MKCN4337	14095100	14005100	MKCB0470	MECOSSIC	RP730530Dcn	14652300	STBH6361	MKCT1512	230505JLM	RP230111	BCCD3396	MKCQ0984	10241100	PR-30126	RP230511A	MKAA0690V	MKCD9952	DR230417RSR	RP230822RSR	MKCR7169	BCCG1833	1011/699	1		RP720521	MRCI 6616		FHN01	1			1		3 RP230823RSR	7-8 BCCJ3217	-3 STBL1057
99% 10	99% 1,0	99% 1,0	1		1	10	- 1			- 1		99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	98%	99%	20%	%66	%8%	200%	9,9		٥		1			
1 000 4 ::	1,000.8 μ	1,003.3 µ	1,000.7	1	1,002.8	1		- 40		1.000 %	1,002.5	1.001.0	1.000 6	1.000 7	1,004.3	1,007.3	1,000.8	1,003.0	1,002.4	1,002.7	1,000.7	1,000.6	1,000.9	6 1,000.7	6 1,003.4	1		1	1		1	- 1		- 1		- 1	99% 1
	μg/mL	µg/mL	µg/mL	μg/ml	µg/mL	μg/mL	μg/mL	μg/mL	Tor/Sul	lla/mI	Ila/mī			- 1	- 1	- 1	- 1	υg/mL	4 µg/mL	- 1	.7 µg/mL	.6 µg/mL).9 µg/mL	0.7 μg/mL	3.4 µg/mL	1,003.0 µg/mL	1,000.7 µg/mL	1,003.0 µg/mL	1,002.1 µg/mL	1,000.6 μg/mL	1,003.7 μg/mL	9.0	1,002.1 µg/mL			1.004.4 110/	1,000.7 µg/mL
	+/- 18.7991	+/- 18.8468	+/- 18.7987	+/- 18.7958	+/- 18.8365	+/- 18.7935	+/- 18.7970	1	+/- 18.7989	- 1		1		1	- 1		- 1	+/- 18.5712		- 1	+/- 18.7975	+/- 18.7963	+/- 18.8010	+/- 18.7980	+/- 18.8487	, +/- 18.5712	+/- 18.7975	+/- 18.8417	L +/- 18.8247	L +/- 18.7965	L +/- 18.8543	ıL +/- 18.7895	nL +/- 18.8242	+	. ‡		t

01-Nov-2022 rev.



65	42	63	62	61	00		59	58	37		56	55	94	2	53		
Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Benzo(a)pyrene	Benzo(k)Illoianusus	Louis (-)	Renzo(b)fluoranthene	Di-n-octyl phthalate	Bis(2-ethylhexyl)phthalate		3 21-Dichlorobenzidine	Chrysene	Benz(a)anthracene	Therefore	Renzvl butyl phthalate	Pyrene		
* Expan	191-24-2 RP230511B	53-70-3 ER032211-01	193-39-5 12-JKL-118-9	50-32-8 P54915-0703	207-08-9 01202233		205-99-2 022013B	117-84-0 14382700	117-81-7 MINCQ5755	SAKEOTAKS	91-94-1 S231019RSR	218-01-9 RP230601	56-55-3	120012022BAA	85-68-7 X12I018	129-00-0 BCCG6477	
* Expanded Uncertainty displayed in Salite units and	98% 1,000.5 hB	1,000.5	1 000 6	110	000% 1,000.6 µg/mL	99% 1,000.6 µg/mL	99% 1,000.7 µg/ш	99% 1,001.0 46	- 10	99% 1,000.5 µg/mL	99% 1,003.2 μg/πι	99% 1,000.0 FB	1000 6 118/mL	99% 1,000.6 µg/mL	99% 1,00000 1.0	000/ 1 000 6 ug/mL	98% 1,000.7 µg/mL
	maire as Grav. Conc.	+/- 18.7934	+/- 18.7963	+/- 18.8089	+/- 18.7968	+/- 18./938	10.7050	+/- 18.7975	+/- 18.8036	T/- 10.1711	18 7947	+/- 18.8440	+/- 18.7958	+/- 10.7301	19 7061	+/- 18.7951	+/- 18.7987

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

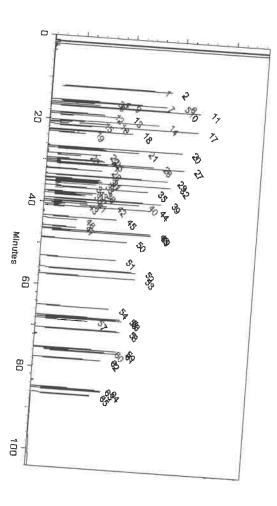
RESTEX

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

Quality Confirmation Test

Temp. Program:
35°C (hold 3 min.) to 330°C
@ 3°C/min. (hold 3 min.)
Inj. Temp:
250°C Carrier Gas:
hydrogen-constant pressure 10 psi

Det. Temp: 300°C Det. Type: FID Split Vent: Ratio 50:1 Inj. Vol



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.

Dillan Murphy - Operations Technician I Penelope Rigilin - Operations Tech |

Date Mixed:

08-Nov-2023

1128360905

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

01-Nov-2022 rev.

RESTEX

General Certified Reference Material Notes

Expiration Notes:

Purity 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 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.
 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. correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.

 Purity of isomeric compounds is reported as the sum of the isomers.
 Purity values are rounded to the nearest whole number.
 Certified Uncertainty Value Notes: The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty, storage stability uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty formula: uncertainty and shipping stability uncertainty and were combined using the following formula:

 $u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage}^2$ stability $u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage}^2$ stability

 $_k$ is a coverage factor of 2, which gives a level of confidence of approximately 95%. $U_{combined\ uncertainty}=k$

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

Manufacturing Notes:

- 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 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 environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed vials are available through Restek as a custom environmental standards packed vials are available through Restek as a custom environmental standards packed vials are available through Restek as a custom environmental standards packed vials are available to the specific handles of the supplies deactivated vials are available to the specific handles are available to the supplies deactivated vials are available to the specific handles are available to the specific handles are availab





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

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CERTIFIED REFERENCE MATERIAL







Certificate of Analysis

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.

Lot No.: A0204128

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

Catalog No.:

31900

Description:

2 mL

Pkg Amt: > 1 mL Storage: 0°C or colder

Ship: Ambient

Container Size : Expiration Date : Handling:

Sonication required. Mix is photosensitive. May 31, 2025

511669

511688 RC 1/15/23

CERTIFIED VALUES

10		15	14	13		170	11	10 3-	9		8 Z	7 He	6 Ac		5 2-1	4 2,2"	3 2-CI	2 Bis(1 rucuon	Dhon	Elution Order	<u> </u>
Ly Louise - I	2 4-Dichlorophenol	Bis(2-chloroethoxy)methane	2,4-Dimethylphenol	2-N100pusuos	AT Landson	Isophorone	Nitrobenzene	3-Methylphenol (m-cresor)	MICHAIL AND AND COLON	A Methylphenol (p-cresol)	N-Nitroso-di-n-propylamine	Hexachloroethane	Acetopnenous		2-Methylphenol (o-cresol)	2,2'-oxybis(1-chloropropane)	2-Chlorophenol	Bis(2-chloroethyl)euter	IV.	0.1	Composition	October
	120-83-2	100 00 0	111-91-1	105-67-9	88-75-5		78-59-1	98-95-3	108-39-4	100-44-5	100 44 5	621-64-7	67-72-1	7-98-86		95-48-7	108-60-1	95-57-8	111-44-4	100-77-2	100 05-2	CAS#
	b Court	BCBZ6787	13670200	XW5GK	RP230509C	20000	MKCC9506	10224044	STBJ0710		SHRN1151	N63MG	QTORH	OIDIRORGO	CTRH8205	SHBN7598	230714JLM	STBJ3909	SHBL6942		MKCK1120	Lot#
		99%	99%	99%		200%	99%	99%	99%	200/	99%	99%	99%		99%	99%	99%	99%	99%	- 1	99%	Purity
			1	1	1	- 1	1,000.7	1,001.1	0	504 4	503.6	1,003.2	1,000.8		1,004.0	1,007.3	1,001.2	1,002.8 µ		1 001 0 11	1,005.8 μ	Grav. Conc. (weight/volume)
		1,007.0 µg/mL	1,001.2 µg/mL	1,000.0 hg,n,n	Indian	1,004.4 µg/mL	mg/mL	µg/mL	9	liø/mL	μg/mL	µg/mL	ma/ari		μg/mL	μg/mL	µg/mL	μg/mL	, di	m/mL	μg/mL	nc. ume)
		+/- 18.9103			+/- 18.8787	+/- 18.8670	+/- 18.7902	10.000	+/_ 18 8045	+/- 9.4746	+/- 9.4605	T/- 10.011)	100110	+/- 18 7991	+/- 18.5897	+/- 18.9210	+/- 18.8004	1/- 10.0004	1/ 18 8365	+/- 18.8034	+/- 18.8928	Uncertainty * (95% C.L.; K=2)

01-Nov-2022 rev.

	52		00	3 49	40	3 4		46	45	4	43	42	41	40	30	3/	36	35	34	33	32	31	31	3 6	20	28	31 6	3 8	3 !	24	23	22	21	20	19	18
	Fluoranthene	Di-n-butylphthalate	Carbazole	Anthracene	Phenanthrene	Pentachlorophenol	Hexachlorobenzene	*-Biomophenyl phenyl ether	J. D. J.	", Demuo-2-methylphenol (Dinitro-o-cresol)	A & District	4. Nitropality	4-Chlorophenyl phenyl ether	Fluorene	2,3,4,6-Tetrachlorophenol	4-Nitrophenol	2,4-Dinitrotoluene	Dibenzofuran	2,4-Dinitrophenol	3-Nitroaniline	Acenaphthene	2,6-Dinitrotoluene	Dimethylphthalate	Acenaphthylene	2-Nuroandine	Siphenyl	2-Chloronaphthalene	2,4,5-Trichlorophenol	2,4,0-IIIchlorophenol	2.4.C	Havoohloon	1,2,4,5-Tetrachlorohenzene	4-Chloro-3-methylphenol	2-Methylnaphthalene	Hexachlorobutadiene	4-Chloroaniline
206-44-0 N					85-01.0	87-86-5	118-74-1	101-55-3	122-39-4	534-52-1	100-01-6	84-66-2	7005-72-3	86-73-7	58-90-2	100-02-7	121-14-2	132-64-0	£1 00 5 99-09-2	000000	83-32-0	606-20-2	131-11-3	208-96-8	88-74-4	92-52-4	91-58-7	95-95-4	88-06-2	77-47-4	95-94-3	59-50-7	91-57-6	87-68-3	106-47-8	91-20-3
MKCQ4728	MKCN4337	14095100	MINCKOD/O	MKCQ8876	NI 230030RSR	PPOSSESSO	14652200	STRH6361	MKCT1517	230505II M	RP230111	BCCD3396	MKC00984	10241100	PR-30176	WINAA0690V	MKCD9952	DR230417RSR	RP230822RSR	MIKCR7169	BCCG1833	1011/699	10117600		RP230531				1		3 MKCS1444	7 BCCD4461	6 STBK0259	.3 RP230823RSR	000	1
99% 10	99% 1,0	99% 1,0	99% 1,		99% 1,		1					99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	98%	99%	79%	%66	%8%	99%	3 3		امِ	9	9			
	1,000.8 μ	1,003.3 µ	1,000.7	1,000.6	1,002.8	1,000.5	1	4	100	C.700°T	1,001.0	1,000.6	1,000.7	1,004.3	1,007.3	1,000.8	1,003.0	1,002.4	1,002.7	1,000.7	1,000.6	5 1,000.9	6 1,000.7	1	1		1	1	1	-	- 1	99% I,	96% 1,	98% I,	99% I	99% 1
1	μg/ml	ng/mL	μg/mL	μg/mL	µg/mL	μg/mL	μg/mL	μg/mL	Tw/Bni	µg/mL	μg/mL			µg/mL	μg/mL	μg/mL	0 μg/mL	4 μg/mL	7 µg/mL	.7 μg/mL	Jug/mL).9 µg/mL	0.7 μg/mL	3.4 μg/mL	1,003.0 µg/mL	1,000.7 µg/mL	1,003.0 μg/mL	1,002.1 μg/mL	1,000.6 μg/mL	1,003./ μg/mL	9.0			1,001.6 µg/mL	1,004.4 μg/mL	1,000.7 μg/mL
	+/- 18.7991		+/- 18.7987	+/- 18.7958	+/- 18.8365	+/- 18.7935	+/- 18.7970	+/- 18.8308	+/- 18.7989	+/- 18.8318	+/- 18.8034	+/- 18.7961	+/- 18.7987	+/- 18.8646	+/- 18.9210	+/- 18.7991	+/- 18.5712	+/- 18.8294	+/- 18.8355	+/- 18.7975	+/- 18.7963	+/- 18.8010	+/- 18.7980	+/- 18.8487	, +/- 18.5712	+/- 18.7975	+/- 18.8417	L +/- 18.8247	L +/- 18.7965	L +/- 18.8543	+-	t ;	<u>+</u> .	<u>+</u>	+/-	mL +/- 18.7975

01-Nov-2022 rev.



65	42	63	62	\ £	2	60	59	58	57		56	55	54	8	3	
Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Benzo(a)pyrono	() arrang	Benzo(k)fluoranthene	Benzo(b)fluoranthene	Di-n-octyl phthalate	Bis(2-ethylhexyl)phthalate	Opt The Section 1	2 21 Dichlorobenzidine	Chrysene	Benz(a)anthracene	Benzyl butyl philiana	L. J. L. J. Shithalate	Pyrene	
* Expan	191-24-2 RP230511B	53-70-3 ER032211-01	193-39-5 12-JKL-118-9	50-52-0	p54915-0703	207-08-9 012022K	205-99-2 022013B	117-84-0 14382700	117-81-7 MACQ3700		01-94-1 S231019RSR	218-01-9 RP230601	56-55-3 I20012022BAA	85-68-7		170-00-0 BCCG8479
* Expanded Uncertainty displayed in Salite units and	98% 1,000.5 pg	1,000.5	1 000 6	97% 1,001.3 µg/mL	99% 1,000.6 µg/mL	99% 1,000.6 µg/mL	99% 1,000.7 µg/ш	99% 1,001.0 46		99% 1,000.5 µg/mL	99% 1,003.2 µg/mL	99% 1,000.0 µВ/пш		00% 1,000.6 µg/mL	99% 1,000.6 µg/mL	98% 1,000.7 µg/mL
	no inite as Grav. Conc.	+/- 18.7934	+/- 18.7963	+/- 18.8089	+/- 18,7700	10 7068	+/- 18.7958	+/- 18.7975	+/- 18.8036	+/- 18./94/	10 7047	+/_ 18.8440	+/- 18.7958	+/- 18.7961	+/- 18.7931	+/- 18.7987

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

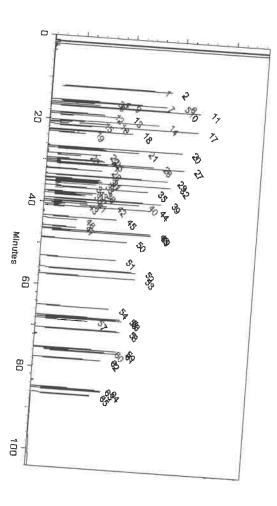
RESTEX

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

Quality Confirmation Test

Temp. Program:
35°C (hold 3 min.) to 330°C
@ 3°C/min. (hold 3 min.)
Inj. Temp:
250°C Carrier Gas:
hydrogen-constant pressure 10 psi

Det. Temp: 300°C Det. Type: FID Split Vent: Ratio 50:1 Inj. Vol



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.

Dillan Murphy - Operations Technician I Penelope Rigilin - Operations Tech |

Date Mixed:

08-Nov-2023

1128360905

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

01-Nov-2022 rev.

RESTEX

General Certified Reference Material Notes

Expiration Notes:

Purity 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 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.
 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. correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.

Purity of isomeric compounds is reported as the sum of the isomers. Purity values are rounded to the nearest whole number. Certified Uncertainty Value Notes: The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty, storage stability uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty formula: uncertainty and shipping stability uncertainty and were combined using the following formula:

 $u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage}^2$ stability $u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage}^2$ stability

$$= k u_{arabimetric}^2 + u_{homogenetty}^2 + u_{storage}^2$$
 stability $+ u_{shipping}^2$ stability

 $U_{combined\ uncertainty}=k$

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

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 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 environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom environmental standards packed vials are available through Restek as a custom environmental standards packed vials are available through Restek as a custom environmental standards packed vials are available through Restek as a custom environmental standards packed vials are available to the specific handles of the supplies deactivated vials are available to the specific handles are available to the supplies deactivated vials are available to the specific handles are available to the specific handles are availab





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

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CERTIFIED REFERENCE MATERIAL Certificate of Analysis











chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

> 30614 Catalog No.:

1,4-dioxane-d8 Standard Description:

Lot No.: A0199745

20110

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

Pkg Amt: > 1 mL

July 31, 2026

Expiration Date:

2 mL

Container Size:

0°C or colder Ambient Ship: Storage:

817118

CERTIFIED VALUES

Compound Elution Order

1,4-Dioxane-d8

Lot # 17647-74-4 CAS#

RP230605

99% 2,008.4 µg/mL

(weight/volume)

Grav. Conc.

Purity

(95% C.L.; K=2)

Expanded

+/- 24.9949

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

P&T Methanol Solvent:

CAS# 67-56-1 %66 Purity



Column: 105m x 0.53mm x 3.0μm Rbx-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.)

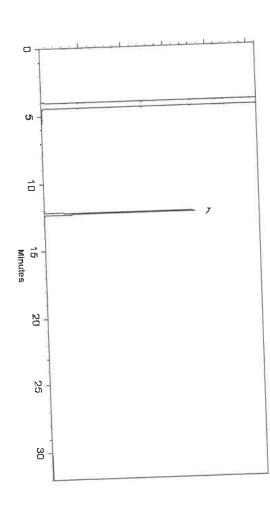
200°C Inj. Temp:

Det. Temp: 250°C

Split Vent:

Det. Type:





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

Daniel Wasson - Operations Tech I

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Jul-2023

Date Mixed: 10-Jul-2023

Balance Serial # 1127510105

Manufactured under Restek's ISO 9001:2015

Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the Expiration date valid for unopened ampul stored in compliance with the recommended conditions. 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. correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
 - 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:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

			H











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Certificate of Analysis

chromatographic plus

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

Catalog No. :

31853

Lot No.: A0196453

311749

_

21. -- 21

11/30/2

Description:

1,4-dioxane

March 31, 2028

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

Container Size : Expiration Date : 2 mL

Pkg Amt:

> 1 mL

Storage:

0°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

^{*} Expanded Uncertainty displayed in same units as Gray. Conc.

Solvent:

Methylene chloride

CAS# 7

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

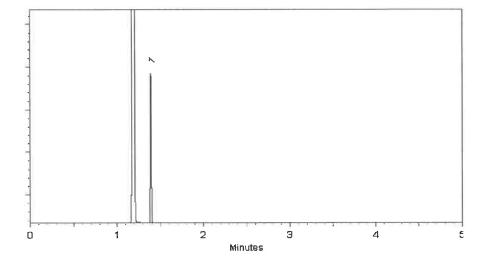
Det. Type:

FID

Split Vent:

100 ml/min.

Inj. Vol



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.

Sommul Mondler
Sam Moodler - Operations Tech I

Date Mixed:

30-Mar-2023

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

31-Mar-2023



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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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





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Fax: 1-814-353-1309 www.restek.com

CERTIFIED REFERENCE MATERIAL









Certificate of Analysis

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

Catalog No.:

31046

Lot No.: A0205496

Description:

Pyridine-d5 Mix

September 30, 2027

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

Container Size: **Expiration Date:** 2 mL

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Ambient

Ship:

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine-d5	7291-22-7	M-317	99%	2,008.4 μg/mL	+/- 32.8508

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

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:

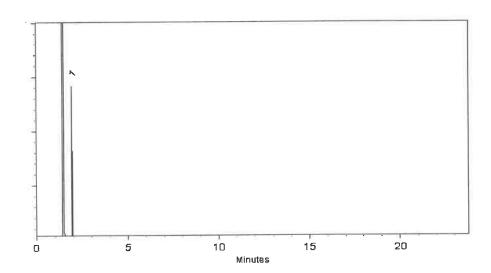
FID

Split Vent:

10 ml/min.

Inj. Vol

1μl



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

Dakota Parson - Operations Technician I

Date Mixed:

14-Dec-2023

Balance Serial #

B345965662

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

18-Dec-2023















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Catalog No.:

31850

Lot No.: A0203726

Description:

8270 MegaMix®

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

Container Size: Expiration Date: 2 mL

Pkg Amt:

> 1 mL

April 30, 2025

Storage:

0°C or colder

Handling: Sonication required. Mix is photosensitive.

Ship: Ambient

CERTIFIED VALUES

512117 Rc/ 03/18/24 512146

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Pyridine	110-86-1	SHBP6240	99%	1,001.6 μg/mL	+/- 36.4412
2	N-Nitrosodimethylamine	62-75-9	230209JLM	99%	1,005.9 μg/mL	+/- 36.5968
3	Phenol	108-95-2	MKCK1120	99%	1,003.3 μg/mL	+/- 36.5038
4	Aniline	62-53-3	X22F726	99%	1,005.8 μg/mL	+/- 36.5928
5	Bis(2-chloroethyl)ether	111-44-4	SHBL6942	99%	1,008.1 μg/mL	+/- 36.6776
6	2-Chlorophenol	95-57-8	STBJ3909	99%	1,001.8 μg/mL	+/- 36.4492
7	1,3-Dichlorobenzene	541-73-1	BCCD5315	99%	1,002.3 μg/mL	+/- 36.4654
8	1,4-Dichlorobenzene	106-46-7	MKBS7929V	99%	1,003.7 μg/mL	+/- 36.5159
9	Benzyl alcohol	100-51-6	SHBK5469	99%	1,008.7 μg/mL	+/- 36.6979
10	1,2-Dichlorobenzene	95-50-1	SHBN3835	99%	1,000.3 μg/mL	+/- 36.3926
11	2-Methylphenol (o-cresol)	95-48-7	SHBN7598	99%	1,003.5 μg/mL	+/- 36.5099
12	2,2'-oxybis(1-chloropropane)	108-60-1	29-MAR-45-5	99%	1,007.3 μg/mL	+/- 36.6493
13	3-Methylphenol (m-cresol)	108-39-4	STBJ0710	99%	504.3 μg/mL	+/- 18.3500
14	4-Methylphenol (p-cresol)	106-44-5	SHBN3411	99%	503.6 μg/mL	+/- 18.3237
15	N-Nitroso-di-n-propylamine	621-64-7	N63MG	99%	1,008.3 μg/mL	+/- 36.6857
16	Hexachloroethane	67-72-1	QTORH	99%	1,007.5 μg/mL	+/- 36.6554
17	Nitrobenzene	98-95-3	10224044	99%	1,008.6 μg/mL	+/- 36.6938

18	Isophorone	78-59-1	MKCC9506	99%	1,005.9	μg/mL	+/- 36.5988
19	2-Nitrophenol	88-75-5	RP230710	99%	1,003.2	μg/mL	+/- 36.4998
20	2,4-Dimethylphenol	105-67-9	XW5GK	99%	1,003.8	μg/mL	+/- 36.5200
21	Bis(2-chloroethoxy)methane	111-91-1	13670200	99%	1,002.1	μg/mL	+/- 36.4573
22	2,4-Dichlorophenol	120-83-2	BCBZ6787	99%	1,003.7	μg/mL	+/- 36.5180
23	1,2,4-Trichlorobenzene	120-82-1	SHBP5900	99%	1,007.6	μg/mL	+/- 36.6574
24	Naphthalene	91-20-3	STBL1057	99%	1,008.3	μg/mL	+/- 36.6837
25	4-Chloroaniline	106-47-8	BCCJ3217	99%	1,001.3	μg/mL	+/- 36.4290
26	Hexachlorobutadiene	87-68-3	RP230823RSR	98%	1,008.3	μg/mL	+/- 36.6829
27	4-Chloro-3-methylphenol	59-50-7	BCCD4461	99%	1,003.1	μg/mL	+/- 36.4937
28	2-Methylnaphthalene	91-57-6	STBK0259	96%	1,001.9	μg/mL	+/- 36.4505
29	1-Methylnaphthalene	90-12-0	5234.00-8	98%	1,000.0	μg/mL	+/- 36.3838
30	Hexachlorocyclopentadiene	77-47-4	099063I14L	98%	1,008.5	μg/mL	+/- 36.6909
31	2,4,6-Trichlorophenol	88-06-2	STBJ5914	99%	1,004.4	μg/mL	+/- 36.5442
32	2,4,5-Trichlorophenol	95-95-4	FHN01	98%	1,001.9	μg/mL	+/- 36.4512
33	2-Chloronaphthalene	91-58-7	RPN7O	99%	1,001.1	μg/mL	+/- 36.4230
34	2-Nitroaniline	88-74-4	RP230531	99%	1,002.9	μg/mL	+/- 36.4876
35	1,4-Dinitrobenzene	100-25-4	RP230816	99%	1,005.7	μg/mL	+/- 36.5887
36	Acenaphthylene	208-96-8	p06V	98%	1,009.5	μg/mL	+/- 36.7265
37	1,3-Dinitrobenzene	99-65-0	1-DXX-24-1	99%	1,004.4	μg/mL	+/- 36.5422
38	Dimethylphthalate	131-11-3	358221L17K	99%	1,005.9	μg/mL	+/- 36.5968
39	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,003.2	μg/mL	+/- 36.4998
40	1,2-Dinitrobenzene	528-29-0	RP230428	99%	1,002.2	μg/mL	+/- 36.4634
41	Acenaphthene	83-32-9	MKCR7169	99%	1,009.3	μg/mL	+/- 36.7221
42	3-Nitroaniline	99-09-2	RP230822RSR	99%	1,003.9	μg/mL	+/- 36.5240
43	2,4-Dinitrophenol	51-28-5	DR230417RSR	99%	1,002.0	μg/mL	+/- 36.4553
44	Dibenzofuran	132-64-9	MKCD9952	99%	1,006.7	μg/mL	+/- 36.6251
45	2,4-Dinitrotoluene	121-14-2	MKAA0690V	99%	1,003.8	μg/mL	+/- 36.5220
46	4-Nitrophenol	100-02-7	RP230627	99%	1,002.3	μg/mL	+/- 36.4674
47	2,3,4,6-Tetrachlorophenol	58-90-2	PR-30126	99%	1,008.7	μg/mL	+/- 36.6979
48	2,3,5,6-Tetrachlorophenol	935-95-5	RP230919	99%	1,006.3	μg/mL	+/- 36.6130
49	Fluorene	86-73-7	10241100	99%	1,008.3	μg/mL	+/- 36.6857
50	4-Chlorophenyl phenyl ether	7005-72-3	MKCT7248	99%	1,003.8	μg/mL	+/- 36.5220
51	Diethylphthalate	84-66-2	MKCD2547	99%	1,008.6	μg/mL	+/- 36.6958
52	4-Nitroaniline	100-01-6	RP230111	99%	1,001.1	μg/mL	+/- 36.4230
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)	534-52-1	230718JLM	99%	1,002.0	μg/mL	+/- 36.4553



54	Diphenylamine	122-39-4	MKCH1042	99%	1,002.3 μg/mL	+/- 36.4674
55	Azobenzene	103-33-3	BCCK0887	99%	1,005.8 μg/mL	+/- 36.5928
56	4-Bromophenyl phenyl ether	101-55-3	STBH6361	99%	1,003.0 μg/mL	+/- 36.4917
57	Hexachlorobenzene	118-74-1	14821700	99%	1,007.5 μg/mL	+/- 36.6554
58	Pentachlorophenol	87-86-5	RP230530RSR	99%	1,008.8 μg/mL	+/- 36.7019
59	Phenanthrene	85-01-8	MKCQ8876	99%	1,008.4 μg/mL	+/- 36.6877
60	Anthracene	120-12-7	MKCR0570	99%	1,009.0 μg/mL	+/- 36.7100
61	Carbazole	86-74-8	14351100	99%	1,000.9 μg/mL	+/- 36.4149
62	Di-n-butylphthalate	84-74-2	MKCN4337	99%	1,007.6 μg/mL	+/- 36.6595
63	Fluoranthene	206-44-0	MKCQ4728	99%	1,009.6 μg/mL	+/- 36.7302
64	Pyrene	129-00-0	BCCG8479	98%	1,007.2 μg/mL	+/- 36.6453
65	Benzyl butyl phthalate	85-68-7	X12I018	99%	1,002.1 μg/mL	+/- 36.4573
66	Bis(2-ethylhexyl)adipate	103-23-1	MKCM1988	99%	1,005.2 μg/mL	+/- 36.5705
67	Benz(a)anthracene	56-55-3	I220012022BAA	99%	1,002.2 μg/mL	+/- 36.4614
68	Chrysene	218-01-9	RP230601	99%	1,008.3 μg/mL	+/- 36.6837
69	Bis(2-ethylhexyl)phthalate	117-81-7	MKCQ3468	99%	1,001.8 μg/mL	+/- 36.4472
70	Di-n-octyl phthalate	117-84-0	14382700	99%	1,006.0 μg/mL	+/- 36.6008
71	Benzo(b)fluoranthene	205-99-2	012013B	99%	1,002.8 μg/mL	+/- 36.4836
72	Benzo(k)fluoranthene	207-08-9	012022K	99%	1,003.0 μg/mL	+/- 36.4917
73	Benzo(a)pyrene	50-32-8	P54915-0703	99%	1,002.3 μg/mL	+/- 36.4674
74	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	1,009.4 μg/mL	+/- 36.7243
75	Dibenz(a,h)anthracene	53-70-3	2-ASA-59-1	99%	1,007.6 μg/mL	+/- 36.6595
76	Benzo(g,h,i)perylene	191-24-2	RP231003RSR	99%	1,002.9 μg/mL	+/- 36.4876

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

Solvent: Methylene chloride

CAS # 75-09-2 Purity 99%

		,			

https://Absolutestandards.com

Absolute Standards, Inc.

www.absolutestandards.com 800-368-1131



orl-rat 1167mg/kg (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) XX 634-66-2 CAS# Conc (ug/mL) (+/-) (ug/mL) Uncertainty Expanded 20.7 5006.4 23030243 Weight(g) 0.25742 Fot# Methylene chloride Solvent(s): Weight(g) 0.25709 Target 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Uncertainty Purity 0.2 Purity 97.3 (%) 1,2,3,4-Tetrachlorobenzene Conc (ug/mL) Nominal 50.0 2000 Refrigerate (4 °C) Weight(s) shown below were combined and diluted to (mL): **FBW01** Number p 040524 040529 **6UTB** 5000 318 RW# Description: Nominal Concentration (µg/mL): Expiration Date: Recommended Storage: Part Number: Lot Number: NIST Test ID#; 1. 1,2,3,4-Tetrachlorobenzene CERTIFIED WEIGHT REPORT Compound N 6

Formulated By:	Anthony Mahoney	DATE 040524
Reviewed By:	Pedro L. Rentas	DATE

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

Abundance TIC: [8:	TIC: [BSB2]70318.D		Scan 599 (12.055 min): [BSB2]70318.D
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1200000		200000	
1000000			
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200000		32	
	The second secon	m/z>0	60 80 100 120 140 160 18

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certified (4-1) 5.5% of the stated value, unless otherwise stated.
 All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Certified Reference Material CRM



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800-368-1131

111722

Description:

Part Number: Lot Number:

CERTIFIED WEIGHT REPORT

Expiration Date: Recommended Storage:

Methylene chloride C21F09CAS0000DCM

real or Prashant Chauhan 3

111722 111722 DATE DATE Pedro L. Rentas

(Solvent Safety Info. On Attached pg.) SDS Information Formulated By: Reviewed By: Uncertainty Expanded Target 5E-05 Balance Uncertainty 0.0003 Flusk Uncertainty Uncertainty Purity Nominal 30.0 Pentachlorobenzene Refrigerate (4 °C) Weight(s) shown below were combined and diluted to (mL): Lot 111727

5000

Nominal Concentration (µg/mL):

OSHA PEL (TWA) CAS#

Conc (ug/mL) (+/-) (ug/mL) Weight(g) Weight(g) Purity (96) Conc (ug/ml.)

Number

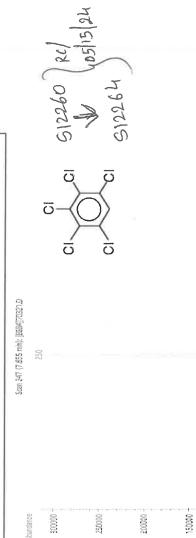
RM#

Compound

orl-rat 1080mg/kg

Method GC7MSD-1.M: Column: SPB-608 (30m X 0.25mm ID X 0.25μm film thickness) Temp 1 = 150°C (4min.), Temp 2 = 290°C (13.5 min.), Rate = 8°C/min., Injector B= 200°C, Detector B = ¥ 608-93-5 50.4 5002.8 0.15092 0.150840.5 99.5 290°C. Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Candice Warren. 5000 2705100 321 Pentachlorobenzene

TO INDIVIDUAL D





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Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.

• All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
• Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result,"
NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Lot # 111722











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Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed. 512302 RC/ V 5130/24

Catalog No.:

31902

Lot No.: A0206859

Description:

Additions Standard

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

Container Size:

2 mL

Pkg Amt: > 1 mL

Expiration Date:

January 31, 2026

Storage:

10°C or colder

Handling:

This product is photosensitive.

Ship: **Ambient**

CERTIFIED VALUES

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

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

Solvent:

Methylene chloride

CAS#

75-09-2

Purity 99%

Column:

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

Carrier Gas:

hydrogen-constant flow 1.8 mL/min.

Temp. Program:

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

Inj. Temp:

250°C

Det. Temp:

340°C

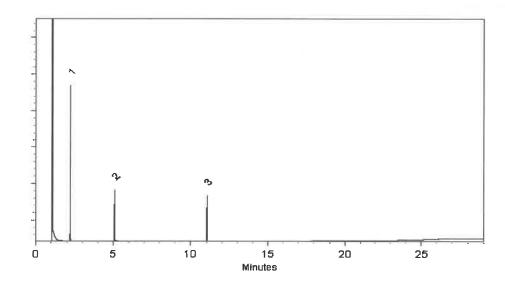
Det. Type:

FID

Split Vent:

100 ml/min.

Inj. Vol 1µl



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

Macy & Man-

Stacey Wanner - Operations Technician I

Date Mixed:

23-Jan-2024

Balance Serial #

B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Jan-2024











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Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed. 512302 RC/ V 5130/24

Catalog No.:

31902

Lot No.: A0206859

Description:

Additions Standard

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

Container Size:

2 mL

Pkg Amt: > 1 mL

Expiration Date:

January 31, 2026

Storage:

10°C or colder

Handling:

This product is photosensitive.

Ship: **Ambient**

CERTIFIED VALUES

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

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

Solvent:

Methylene chloride

CAS#

75-09-2

Purity 99%

Column:

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

Carrier Gas:

hydrogen-constant flow 1.8 mL/min.

Temp. Program:

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

Inj. Temp:

250°C

Det. Temp:

340°C

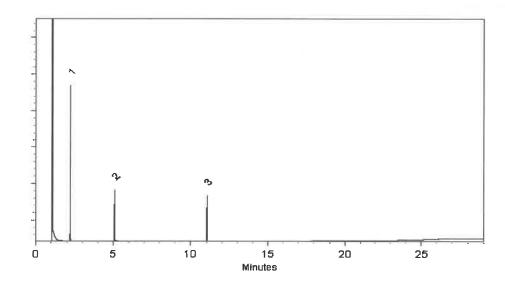
Det. Type:

FID

Split Vent:

100 ml/min.

Inj. Vol 1µl



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

Macy & Man-

Stacey Wanner - Operations Technician I

Date Mixed:

23-Jan-2024

Balance Serial #

B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Jan-2024



110 Benner Circle

CERTIFIED REFERENCE MATERIAL







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Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for G12312 RC/ 05/30/24 G12331 the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No.:

31206

Lot No.: A0206540

Description:

SV Internal Standard Mix 2mg/ml

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

1mL/ampul

Container Size:

Handling:

2 mL

Expiration Date:

December 31, 2029

Sonication required. Mix is

photosensitive.

Pkg Amt: > 1 mL

Storage: 10°C or colder

> Ship: **Ambient**

> > CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99%	2,007.1 μg/mL	+/- 90.4025
2	Naphthalene-d8	1146-65-2	M-2180	99%	2,005.9 μg/mL	+/- 90.3454
3	Acenaphthene-d10	15067-26-2	PR-33507	99%	2,007.9 μg/mL	+/- 90.4385
4	Phenanthrene-d10	1517-22-2	PR-32303	99%	2,006.7 μg/mL	+/- 90.3845
5	Chrysene-d12	1719-03-5	PR-32210	99%	2,015.5 μg/mL	+/- 90.7778
6	Perylene-d12	1520-96-3	PR-33205	99%	2,014.7 μg/mL	+/- 90.7448

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

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

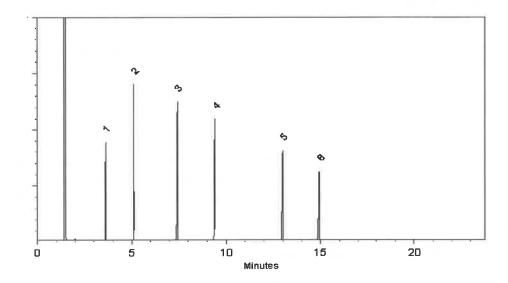
Det. Type:

FID

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.

Miline Homin

Malina Homan - Operations Technician I

Date Mixed:

12-Jan-2024

Balance Serial #

1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

16-Jan-2024













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Certificate of Analysis gravimetric

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555223

Lot No.: A0214021

Description:

Custom 8270 Plus Standard #1

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

1mL/ampul

Container Size: **Expiration Date:** 2 mL

July 31, 2026

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Handling:

This product is photosensitive.

Ship: Ambient

CERTIFIED VALUES

Componen t#	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	3,3'-Dichlorobenzidine	91-94-1	S240326RSR	99%	1,004.0 μg/mL	+/- 23.0487
2	Atrazine	1912-24-9	5FYWL	99%	1,005.0 μg/mL	+/- 23.0717
3	Benzidine	92-87-5	S240430RSR	99%	1,006.0 μg/mL	+/- 23.0947
4	epsilon-Caprolactam	105-60-2	Y16H012	99%	1,000.0 μg/mL	+/- 22.9569

Solvent:

Methylene chloride

CAS#

75-09-2

Purity

99%

512449 | RC/ 12508 | 7/24/24

Repens & June

Rebecca Gingerich - Operations Tech II

Date Mixed:

18-Jul-2024

Balance: 1128353505

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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















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Certificate of Analysis gravimetric

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555223

Lot No.: A0214021

Description:

Custom 8270 Plus Standard #1

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

1mL/ampul

Container Size: **Expiration Date:** 2 mL

July 31, 2026

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Handling:

This product is photosensitive.

Ship: Ambient

CERTIFIED VALUES

Componen t#	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	3,3'-Dichlorobenzidine	91-94-1	S240326RSR	99%	1,004.0 μg/mL	+/- 23.0487
2	Atrazine	1912-24-9	5FYWL	99%	1,005.0 μg/mL	+/- 23.0717
3	Benzidine	92-87-5	S240430RSR	99%	1,006.0 μg/mL	+/- 23.0947
4	epsilon-Caprolactam	105-60-2	Y16H012	99%	1,000.0 μg/mL	+/- 22.9569

Solvent:

Methylene chloride

CAS#

75-09-2

Purity

99%

512449 | RC/ 12508 | 7/24/24

Repens & June

Rebecca Gingerich - Operations Tech II

Date Mixed:

18-Jul-2024

Balance: 1128353505

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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















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Certificate of Analysis gravimetric

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555224

Lot No.: A0214017

Description:

Custom 8270 Plus Standard #2

Custom 8270 Plus Standard #2 1,000µg/mL, Methylene Chloride,

1mL/ampul

Container Size:

2 mL

Expiration Date:

July 31, 2026

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

Solvent:

Methylene chloride

CAS# **Purity**

75-09-2 99%

512568 RC/ S12568 7/24/24

Jess Hoy - Operations Tech I

Date Mixed:

18-Jul-2024

Balance: 1128360905

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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













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

www.restek.com

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

31810

Lot No.: A0213304

Description:

OLC03.2 SVOA Deuterated Monitoring Compounds Mix

OLC 03.2 SVOA Deuterated Monitoring Compounds, 1mL/ampul,

Methylene Chloride, 2000µg/mL

Container Size:

2 mL

Expiration Date:

Handling:

March 31, 2028

Sonication required. Mix is

photosensitive.

Pkg Amt: > 1 mL

Storage: 10°C or colder

> Ship: **Ambient**

> > CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Phenol-d5	4165-62-2	HJ-481	99%	2,001.0 μg/mL	+/- 60.5273
2	bis(2-Chloroethyl) ether-d8	93952-02-4	PR-31659	99%	2,001.0 μg/mL	+/- 60.5273
3	2-Chlorophenol-d4	93951-73-6	PR-30568	99%	2,001.0 μg/mL	+/- 60.5273
4	4-Methylphenol-d8	190780-66-6	PR-25303	99%	2,004.0 μg/mL	+/- 60.6181
5	Nitrobenzene-d5	4165-60-0	PR-33424A	99%	2,001.0 μg/mL	+/- 60.5273
6	2-Nitrophenol-d4	93951-78-1	H-151	99%	2,001.0 μg/mL	+/- 60.5273
7	2,4-Dichlorophenol-d3	93951-74-7	JK-447	99%	2,002.0 μg/mL	+/- 60.5576
8	4-Chloroaniline-d4	191656-33-4	FG-142	99%	2,001.0 μg/mL	+/- 60.5273
9	Dimethylphthalate-d6	85448-30-2	X-477	99%	2,001.0 μg/mL	+/- 60.5273
10	Acenaphthylene-d8	93951-97-4	FG-239	99%	2,001.0 μg/mL	+/- 60.5273
11	4-Nitrophenol-d4	93951-79-2	FG-377	99%	2,002.0 μg/mL	+/- 60.5576
12	Fluorene-d10	81103-79-9	FG-335	99%	2,002.0 μg/mL	+/- 60.5576
13	4,6-Dinitro-2-methylphenol-d2	93951-76-9	FG-143	99%	2,002.0 μg/mL	+/- 60.5576
14	Anthracene-d10	1719-06-8	PR-31411	99%	2,001.0 μg/mL	+/- 60.5273
15	Pyrene-d10	1718-52-1	PR-30304	99%	2,002.0 μg/mL	+/- 60.5576
16	Benzo(a)pyrene-d12	63466-71-7	PR-34192A	99%	2,001.0 μg/mL	+/- 60.5273





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

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CERTIFIED REFERENCE MATERIAL









Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. :

31206

Lot No.: A0212266

Description:

SV Internal Standard Mix 2mg/ml

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

1mL/ampul

Container Size:

Handling:

2 mL

16

April 30, 2030

Expiration Date :

Sonication required. Mix is

photosensitive.

Pkg Amt: > 1 mL

Storage: 10°C or colder

Ship: Ambient

CERTIFIED VALUES

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

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

Solvent:

Methylene chloride

CAS # Purity 75-09-2

rity 99%

S12645) AC 512674 10/1/24

800-368-1131 Absolute Standards, Inc.

www.absolutestandards.com



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

Part Number: Lot Number: 061323 90494

Description: 1-Methylnaphthalene

Recommended Storage Expiration Date 061328

Nominal Concentration (µg/mL): NIST Test ID#: 2000 Refrigerate (4 °C)

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

RW#

Number ĕ

Conc (ug/mL)

8

Weight(g) Target

Weight(g) Actual

Nominal

Purity

Uncertainty Purity

100.0

5E-05 Balance Uncertainty

Reviewed By:

Pedro L. Rentas

061323 DATE

0.031 Flask Uncertainty

Solvent(s):

Methylene chloride C21F09CAS0000DCM

Formulated By: Prashant Chauhan

061323

Conc (µg/mL) (+/-) (µg/mL) Actual Uncertainty Expanded (Solvent Safety Info. On Attached pg.) CAS# SDS Information OSHA PEL (TWA)

Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Gina McLane. Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B = 200°C, Detector B = 275°C, 1-Methylnaphthalene 313 04413BX 2000 98 0.20417 0.20430 2001.2 8. 3 90-12-0 orl-rat 1840mg/kg

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

- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Certified Reference Material CRM

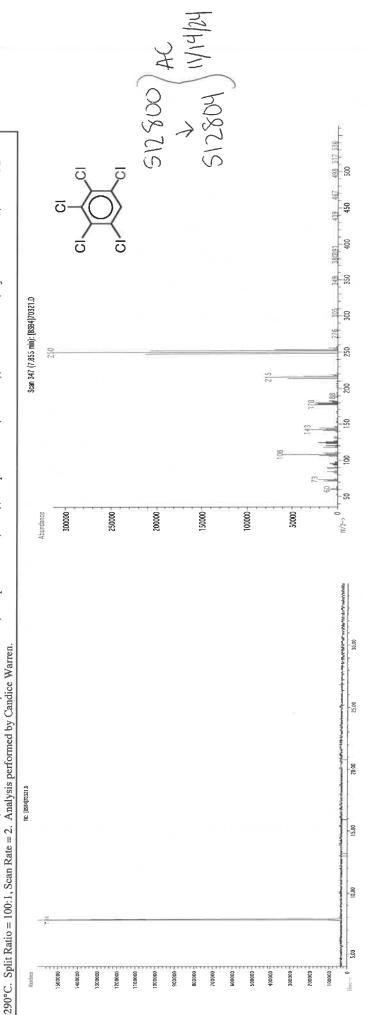




Absolute Standards, Inc. www.absolutestandards.com

800-368-1131

CEMITHED WEIGHT REPORT								*				
Part Number: Lot Number: Description		<u>98495</u> 111324 Pentachlombenzene	henzene		Methyle	Solvent(s): Methylene chloride	Lot# 23343		Min	1 iles	Jan	111324
									Formulated By:		Anthony Mahoney	DATE
Expiration Date:		111329								1		
Recommended Storage:		Refrigerate (4 °C)	(4 °C)						3		A	
Nominal Concentration (µg/mL):		5000							1/2	all to	Hento	111324
NIST Test ID#:		6UTB		5E-05	5E-05 Balance Uncertainty	ıty			Reviewed By:	ď	Pedro L. Rentas	DATE
Weight(s) shown below were combined and diluted to (mL):	and dilute	ed to (mL):	30.0	0.002	0.002 Flask Uncertainty			-				
									Expanded	•,	SDS Information	
		Lot	Nominal	Purity	Purity Uncertainty	Target	Actual	Actual	Uncertainty (S	Solvent Sa	Uncertainty (Solvent Safety Info. On Attached pg.)	hed pg.)
Compound	RM#	Number	Conc (µg/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL) (+/-) (µg/mL)		CAS#	OSHA PEL (TWA)	LD50
. Pentachlorobenzene	321	321 2705100	2000	99.5	0.5	0.15086	0.15103	5005.7	50.4 60	608-93-5	N/A	orl-rat 1080mg/kg



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