284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900, Fax : 908 789 8922

Prep Standard - Chemical Standard Summary

Order ID : Q3530

Test : EPH

Prepbatch ID : PB170799,

Sequence ID/Qc Batch ID: FE121125AL,

Standard ID :
EP2659,EP2663,PP24768,PP24769,PP24770,PP24771,PP24772,PP24773,PP24774,PP24914,PP24994,PP25012,PP25078,

Chemical ID :
E3875,E3951,E3956,E3974,E3979,E3980,E3982,E3986,E3988,P12364,P13280,P13281,P13620,P13690,P13867,P14016,P14033,P14034,P14035,P14036,P14037,P14092,P14137,P14138,P14139,P14140,P14141,P14151,P14152,P14153,P14154,P14155,P14170,P14171,P14172,P14173,P14205,P14206,P14207,P14208,P14209,W3234,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2017	1:1 ACETONE/METHYLENE CHLORIDE	EP2659	11/03/2025	04/16/2026	RUPESHKUMAR SHAH	None	None	Riteshkumar Patel 11/03/2025

FROM 8000.00000ml of E3980 + 8000.00000ml of E3982 = Final Quantity: 16000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2663	11/20/2025	05/20/2026	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Riteshkumar Patel 11/20/2025

FROM 4000.00000gram of E3875 = Final Quantity: 4000.000 gram

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
781	100 PPM Aliphatic HC Working STD (Restek)	PP24768	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.25000ml of P13620 + 0.25000ml of P13690 + 1.25000ml of P12364 + 23.25000ml of E3956 = Final Quantity: 25.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2900	100 PPM Aliphatic HC STD (Absolute)	PP24769	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.22000ml of P13690 + 0.25000ml of P13620 + 1.25000ml of P13280 + 1.25000ml of P13281 + 22.00000ml of E3956 = Final Quantity: 25.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
783	50 PPM Aliphatic HC STD	PP24770	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.50000ml of W3234 + 0.50000ml of PP24768 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
784	20 PPM Aliphatic HC STD	PP24771	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.80000ml of W3234 + 0.20000ml of PP24768 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
785	10 PPM Aliphatic HC STD	PP24772	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.90000ml of W3234 + 0.10000ml of PP24768 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
786	5 PPM Aliphatic HC STD	PP24773	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.90000ml of W3234 + 0.10000ml of PP24770 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2901	20 PPM Aliphaitic HC STD ICV (Absolute)	PP24774	08/01/2025	02/01/2026	Yogesh Patel	None	None	Abdul Mirza 08/19/2025

FROM 0.80000ml of W3234 + 0.20000ml of PP24769 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2589	20 PPM NJ EPH SPIKE for LOD-LOQ	PP24914	08/25/2025	01/29/2026	Yogesh Patel	None	None	Abdul Mirza 09/22/2025

FROM 1.00000ml of P14016 + 1.00000ml of P14092 + 8.00000ml of P13867 = Final Quantity: 10.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1331	100 PPM NJEPH Fractionating Surrogate	PP24994	10/09/2025	04/09/2026	Abdul Mirza	None	None	Yogesh Patel 10/10/2025

FROM 1.25000ml of P14170 + 1.25000ml of P14171 + 1.25000ml of P14172 + 1.25000ml of P14173 + 195.00000ml of E3974 = Final Quantity: 200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1339	100 PPM NJEPH Surrogate Spike	PP25012	10/27/2025	04/27/2026	Abdul Mirza	None	None	Yogesh Patel 11/04/2025

FROM 1.00000ml of P14033 + 1.00000ml of P14034 + 1.00000ml of P14035 + 1.00000ml of P14036 + 1.00000ml of P14037 + 1.00000ml of P14151 + 1.00000ml of P14152 + 1.00000ml of P14153 + 1.00000ml of P14154 + 1.00000ml of P14155 + 490.00000ml of E3979 = Final Quantity: 500.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1330	100 PPM NJEPH Spike Solution	PP25078	12/02/2025	06/02/2026	Abdul Mirza	None	None	Yogesh Patel 12/17/2025

FROM 5.00000ml of P14137 + 5.00000ml of P14138 + 5.00000ml of P14139 + 5.00000ml of P14140 + 5.00000ml of P14141 + 5.00000ml of P14205 + 5.00000ml of P14206 + 5.00000ml of P14207 + 5.00000ml of P14208 + 5.00000ml of P14209 = Final Quantity: 50.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1	417203	07/28/2026	07/28/2025 / RUPESH	01/29/2025 / Rajesh	E3875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3382-05 / Sand, Purified (cs/4x2.5kg)	25A2756718	12/31/2028	07/09/2025 / RUPESH	04/28/2020 / RUPESH	E3951

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	25C0362005	04/30/2026	07/16/2025 / RUPESH	07/16/2025 / RUPESH	E3956

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	25C0362006	04/10/2027	09/26/2025 / Riteshkumar	09/26/2025 / Riteshkumar	E3974

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)	24L1062001	10/04/2027	10/15/2025 / RITESHKUMAR	09/29/2025 / Riteshkumar	E3979

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	25C1262005	04/16/2026	10/10/2025 / RUPESH	10/10/2025 / RUPESH	E3980

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	24L1062001	10/04/2027	10/31/2025 / RUPESH	10/31/2025 / RUPESH	E3982

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	25C1262005	04/16/2026	11/14/2025 / RUPESH	11/05/2025 / RUPESH	E3986

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	25G1662002	05/21/2026	11/21/2025 / RUPESH	11/19/2025 / RUPESH	E3988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30540 / Custom NJEPH Aliphatics Calibration Standard	A0190424	02/01/2026	08/01/2025 / yogesh	03/16/2023 / Yogesh	P12364

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95899 / NJ EPH Aliphatic n-Hydrocarbons-Revised, 1000 PPM	040524	02/01/2026	08/01/2025 / yogesh	04/11/2024 / yogesh	P13280

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95899 / NJ EPH Aliphatic n-Hydrocarbons-Revised, 1000 PPM	040524	02/01/2026	08/01/2025 / yogesh	04/11/2024 / yogesh	P13281

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31098 / 1-Chlorooctadecane Standard	A0213283	02/01/2026	08/01/2025 / yogesh	10/16/2024 / yogesh	P13620

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31097 / o-Terphenyl Standard	A0216631	02/01/2026	08/01/2025 / yogesh	10/16/2024 / yogesh	P13690

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
VWR Scientific	BDH83632 / PENTANE	24080083	08/28/2027	01/27/2025 / yogesh	01/27/2025 / yogesh	P13867

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30543 / Custom NJEPH Aromatics Matrix Spike Mix	A0225381	01/29/2026	07/29/2025 / Abdul	05/20/2025 / Rahul	P14016

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31098 / 1-Chlorooctadecane Standard	A0225485	04/27/2026	10/27/2025 / Abdul	06/02/2025 / Rahul	P14033

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31098 / 1-Chlorooctadecane Standard	A0225485	04/27/2026	10/27/2025 / Abdul	06/02/2025 / Rahul	P14034

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31098 / 1-Chlorooctadecane Standard	A0225485	04/27/2026	10/27/2025 / Abdul	06/02/2025 / Rahul	P14035

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31098 / 1-Chlorooctadecane Standard	A0225485	04/27/2026	10/27/2025 / Abdul	06/02/2025 / Rahul	P14036

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31098 / 1-Chlorooctadecane Standard	A0225485	04/27/2026	10/27/2025 / Abdul	06/02/2025 / Rahul	P14037

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30542 / Custom NJEPH Aliphatics Matrix Spike Mix	A0220449	01/29/2026	07/29/2025 / Abdul	07/16/2025 / anahy	P14092

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30542 / Custom NJEPH Aliphatics Matrix Spike Mix	A0226411	06/02/2026	12/02/2025 / Abdul	09/16/2025 / Abdul	P14137

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30542 / Custom NJEPH Aliphatics Matrix Spike Mix	A0226411	06/02/2026	12/02/2025 / Abdul	09/16/2025 / Abdul	P14138

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30542 / Custom NJEPH Aliphatics Matrix Spike Mix	A0226411	06/02/2026	12/02/2025 / Abdul	09/16/2025 / Abdul	P14139

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30542 / Custom NJEPH Aliphatics Matrix Spike Mix	A0226411	06/02/2026	12/02/2025 / Abdul	09/16/2025 / Abdul	P14140

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30542 / Custom NJEPH Aliphatics Matrix Spike Mix	A0226411	06/02/2026	12/02/2025 / Abdul	09/16/2025 / Abdul	P14141

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31097 / o-Terphenyl Standard	A0216631	04/27/2026	10/27/2025 / Abdul	09/24/2025 / Abdul	P14151

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31097 / o-Terphenyl Standard	A0216631	04/27/2026	10/27/2025 / Abdul	09/24/2025 / Abdul	P14152

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31097 / o-Terphenyl Standard	A0216631	04/27/2026	10/27/2025 / Abdul	09/24/2025 / Abdul	P14153

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31097 / o-Terphenyl Standard	A0216631	04/27/2026	10/27/2025 / Abdul	09/24/2025 / Abdul	P14154

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31097 / o-Terphenyl Standard	A0216631	04/27/2026	10/27/2025 / Abdul	09/24/2025 / Abdul	P14155

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31480 / MA Fractionation Surrogate Spike Mix	A0227585	04/09/2026	10/09/2025 / Abdul	10/01/2025 / Abdul	P14170

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31480 / MA Fractionation Surrogate Spike Mix	A0227585	04/09/2026	10/09/2025 / Abdul	10/01/2025 / Abdul	P14171

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31480 / MA Fractionation Surrogate Spike Mix	A0227585	04/09/2026	10/09/2025 / Abdul	10/01/2025 / Abdul	P14172

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	31480 / MA Fractionation Surrogate Spike Mix	A0227585	04/09/2026	10/09/2025 / Abdul	10/01/2025 / Abdul	P14173

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30543 / Custom NJEPH Aromatics Matrix Spike Mix	A0231145	06/02/2026	12/02/2025 / Abdul	10/21/2025 / Abdul	P14205

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30543 / Custom NJEPH Aromatics Matrix Spike Mix	A0231145	06/02/2026	12/02/2025 / Abdul	10/21/2025 / Abdul	P14206

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30543 / Custom NJEPH Aromatics Matrix Spike Mix	A0231145	06/02/2026	12/02/2025 / Abdul	10/21/2025 / Abdul	P14207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30543 / Custom NJEPH Aromatics Matrix Spike Mix	A0231145	06/02/2026	12/02/2025 / Abdul	10/21/2025 / Abdul	P14208

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30543 / Custom NJEPH Aromatics Matrix Spike Mix	A0231145	06/02/2026	12/02/2025 / Abdul	10/21/2025 / Abdul	P14209

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	25C0362005	04/30/2026	07/28/2025 / jignesh	07/25/2025 / jignesh	W3234

n-Hexane 95%
ULTRA RESI-ANALYZED
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9262-03
Batch No.: 25C0362006
Manufactured Date: 2025-01-29
Expiration Date:2026-04-30
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	6
ECD-Sensitive Impurities (as EthyleneDibromide) - Single Impurity Peak (ng/mL)	<= 5	4
Assay (Total Saturated C_6 Isomers) (byGC, corrected for water)	>= 99.5 %	100.0 %
Assay (as n-Hexane) (by GC, correctedfor water)	>= 95 %	100 %
Color (APHA)	<= 10	10
Residue after Evaporation	<= 1.0 ppm	0.2 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	<= 0.05 %	<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 3974

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

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

CERTIFICATE OF ANALYSIS

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

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

COMMENTS

QC: PhC Irma Belmares

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

E 3875

VWR®
BDH® CHEMICALS

Certificate of Analysis

Material	BDH9274-2.5KG
Material Description	BDH SAND STDD OTTAWA W+I 2.5KG
Grade	NOT APPLICABLE
Batch	25A2756718
Reassay Date	12/31/2028
CAS Number	14808-60-7
Molecular Formula	SiO2
Molecular Mass	60.09
Date of Manufacture	12/05/2024
Storage	Room Temperature

Characteristics	Specifications	Measured Values
Appearance	Beige granules.	Beige granules.
Moisture	<= 0.1 %	0.1 %
Particle Size 30-40 mesh	>= 80 %	99 %
CUSTOMER PART # BDH9274-2.5KG		

Received on 7/9/25.

E3951

Internal ID #: 793

Signature	Additional Information
We certify that this batch conforms to the specifications listed above.	Analysis may have been rounded to significant digits in specification limits
This document has been electronically produced and is valid without a signature.	Product meets analytical specifications of the grades listed.
Leona Edwardson, Quality Control Sr. Manager - Solon VWR Chemicals, LLC. 28600 Fountain Parkway, Solon OH 44139 USA	

n-Hexane 95%
ULTRA RESI-ANALYZED
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9262-03
Batch No.: 25C0362005
Manufactured Date: 2025-01-29
Expiration Date:2026-04-30
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	6
ECD-Sensitive Impurities (as EthyleneDibromide) - Single Impurity Peak (ng/mL)	<= 5	5
Assay (Total Saturated C_6 Isomers) (byGC, corrected for water)	>= 99.5 %	100.0 %
Assay (as n-Hexane) (by GC, correctedfor water)	>= 95 %	100 %
Color (APHA)	<= 10	10
Residue after Evaporation	<= 1.0 ppm	0.1 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	<= 0.05 %	<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

Recieved on 7/16/25

E3956

JCroak

Jamie Croak
Director Quality Operations, Bioscience Production

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9254-03
Batch No.: 24L1062001
Manufactured Date: 2024-10-04
Expiration Date:2027-10-04
Revision No.: 0

Certificate of Analysis

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

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

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

E3979

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

avantor | J.T.Baker

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

Certificate of Analysis

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

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

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

Rec. on 6/10/25 PJ

E3980

Jamie Croak
Director Quality Operations, Bioscience Production

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Avantor Performance Materials,LLC
100 Matsonford Rd, Suite 200,Radnor,PA,19087.U.S.A.Phone 610.386.1700

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9254-03
Batch No.: 24L1062001
Manufactured Date: 2024-10-04
Expiration Date:2027-10-04
Revision No.: 0

Certificate of Analysis

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

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

Received on 10/29/25

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

E3982

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

avantor™ | J.T.Baker

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

Certificate of Analysis

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

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

Received on 11/5/25

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

E3986

J Croak

Jamie Croak
Director Quality Operations, Bioscience Production

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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.

P14127 (13) → P14141 / 9/16/25

Catalog No. : 30542 **Lot No.:** A0226411

Description : NJEPH Aliphatics Matrix Spike Mix

NJEPH Aliphatics Matrix Spike Mix 200 µg/mL, n-Pentane, 5mL/ampul

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	n-Nonane (C9)	111-84-2	SHBP9752	99%	200.3 µg/mL	+/- 5.1753
2	n-Decane (C10)	124-18-5	SHBS1019	99%	200.3 µg/mL	+/- 5.1753
3	n-Dodecane (C12)	112-40-3	SHBP7054	99%	200.0 µg/mL	+/- 5.1667
4	n-Tetradecane (C14)	629-59-4	STBL2522	99%	200.0 µg/mL	+/- 5.1667
5	n-Hexadecane (C16)	544-76-3	SHBR0670	99%	200.0 µg/mL	+/- 5.1667
6	n-Octadecane (C18)	593-45-3	UE5NG	99%	200.0 µg/mL	+/- 5.1667
7	n-Eicosane (C20)	112-95-8	MKCN8767	99%	200.0 µg/mL	+/- 5.1667
8	n-Heneicosane (C21)	629-94-7	MKCP1960	99%	200.3 µg/mL	+/- 5.1753
9	n-Docosane (C22)	629-97-0	MKCQ3729	99%	200.0 µg/mL	+/- 5.1667
10	n-Tetracosane (C24)	646-31-1	UH5GN	99%	200.0 µg/mL	+/- 5.1667
11	n-Hexacosane (C26)	630-01-3	MKCV0107	99%	200.0 µg/mL	+/- 5.1667
12	n-Octacosane (C28)	630-02-4	BCCM2091	99%	200.0 µg/mL	+/- 5.1667
13	n-Triacontane (C30)	638-68-6	MKCW9459	99%	200.0 µg/mL	+/- 5.1667
14	n-Dotriacontane (C32)	544-85-4	BCBW0661	99%	200.0 µg/mL	+/- 5.1667
15	n-Tetratriacontane (C34)	14167-59-0	6JNHB	99%	200.0 µg/mL	+/- 5.1667
16	n-Hexatriacontane (C36)	630-06-8	U30H007	99%	200.0 µg/mL	+/- 5.1667
17	n-Octatriacontane (C38)	7194-85-6	0000207852	96%	200.0 µg/mL	+/- 5.1667

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Certificate of Analysis

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P14127 (13) → P14141 / 9/16/25

Catalog No. : 30542 **Lot No.:** A0226411

Description : NJEPH Aliphatics Matrix Spike Mix

NJEPH Aliphatics Matrix Spike Mix 200 µg/mL, n-Pentane, 5mL/ampul

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	n-Nonane (C9)	111-84-2	SHBP9752	99%	200.3 µg/mL	+/- 5.1753
2	n-Decane (C10)	124-18-5	SHBS1019	99%	200.3 µg/mL	+/- 5.1753
3	n-Dodecane (C12)	112-40-3	SHBP7054	99%	200.0 µg/mL	+/- 5.1667
4	n-Tetradecane (C14)	629-59-4	STBL2522	99%	200.0 µg/mL	+/- 5.1667
5	n-Hexadecane (C16)	544-76-3	SHBR0670	99%	200.0 µg/mL	+/- 5.1667
6	n-Octadecane (C18)	593-45-3	UE5NG	99%	200.0 µg/mL	+/- 5.1667
7	n-Eicosane (C20)	112-95-8	MKCN8767	99%	200.0 µg/mL	+/- 5.1667
8	n-Heneicosane (C21)	629-94-7	MKCP1960	99%	200.3 µg/mL	+/- 5.1753
9	n-Docosane (C22)	629-97-0	MKCQ3729	99%	200.0 µg/mL	+/- 5.1667
10	n-Tetracosane (C24)	646-31-1	UH5GN	99%	200.0 µg/mL	+/- 5.1667
11	n-Hexacosane (C26)	630-01-3	MKCV0107	99%	200.0 µg/mL	+/- 5.1667
12	n-Octacosane (C28)	630-02-4	BCCM2091	99%	200.0 µg/mL	+/- 5.1667
13	n-Triacontane (C30)	638-68-6	MKCW9459	99%	200.0 µg/mL	+/- 5.1667
14	n-Dotriacontane (C32)	544-85-4	BCBW0661	99%	200.0 µg/mL	+/- 5.1667
15	n-Tetratriacontane (C34)	14167-59-0	6JNHB	99%	200.0 µg/mL	+/- 5.1667
16	n-Hexatriacontane (C36)	630-06-8	U30H007	99%	200.0 µg/mL	+/- 5.1667
17	n-Octatriacontane (C38)	7194-85-6	0000207852	96%	200.0 µg/mL	+/- 5.1667

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P14127 (13) → P14141 / 9/16/25

Catalog No. : 30542 **Lot No.:** A0226411

Description : NJEPH Aliphatics Matrix Spike Mix

NJEPH Aliphatics Matrix Spike Mix 200 µg/mL, n-Pentane, 5mL/ampul

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	n-Nonane (C9)	111-84-2	SHBP9752	99%	200.3 µg/mL	+/- 5.1753
2	n-Decane (C10)	124-18-5	SHBS1019	99%	200.3 µg/mL	+/- 5.1753
3	n-Dodecane (C12)	112-40-3	SHBP7054	99%	200.0 µg/mL	+/- 5.1667
4	n-Tetradecane (C14)	629-59-4	STBL2522	99%	200.0 µg/mL	+/- 5.1667
5	n-Hexadecane (C16)	544-76-3	SHBR0670	99%	200.0 µg/mL	+/- 5.1667
6	n-Octadecane (C18)	593-45-3	UE5NG	99%	200.0 µg/mL	+/- 5.1667
7	n-Eicosane (C20)	112-95-8	MKCN8767	99%	200.0 µg/mL	+/- 5.1667
8	n-Heneicosane (C21)	629-94-7	MKCP1960	99%	200.3 µg/mL	+/- 5.1753
9	n-Docosane (C22)	629-97-0	MKCQ3729	99%	200.0 µg/mL	+/- 5.1667
10	n-Tetracosane (C24)	646-31-1	UH5GN	99%	200.0 µg/mL	+/- 5.1667
11	n-Hexacosane (C26)	630-01-3	MKCV0107	99%	200.0 µg/mL	+/- 5.1667
12	n-Octacosane (C28)	630-02-4	BCCM2091	99%	200.0 µg/mL	+/- 5.1667
13	n-Triacontane (C30)	638-68-6	MKCW9459	99%	200.0 µg/mL	+/- 5.1667
14	n-Dotriacontane (C32)	544-85-4	BCBW0661	99%	200.0 µg/mL	+/- 5.1667
15	n-Tetratriacontane (C34)	14167-59-0	6JNHB	99%	200.0 µg/mL	+/- 5.1667
16	n-Hexatriacontane (C36)	630-06-8	U30H007	99%	200.0 µg/mL	+/- 5.1667
17	n-Octatriacontane (C38)	7194-85-6	0000207852	96%	200.0 µg/mL	+/- 5.1667

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P14127 (13) → P14141 / 9/16/25

Catalog No. : 30542 **Lot No.:** A0226411

Description : NJEPH Aliphatics Matrix Spike Mix

NJEPH Aliphatics Matrix Spike Mix 200 µg/mL, n-Pentane, 5mL/ampul

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	n-Nonane (C9)	111-84-2	SHBP9752	99%	200.3 µg/mL	+/- 5.1753
2	n-Decane (C10)	124-18-5	SHBS1019	99%	200.3 µg/mL	+/- 5.1753
3	n-Dodecane (C12)	112-40-3	SHBP7054	99%	200.0 µg/mL	+/- 5.1667
4	n-Tetradecane (C14)	629-59-4	STBL2522	99%	200.0 µg/mL	+/- 5.1667
5	n-Hexadecane (C16)	544-76-3	SHBR0670	99%	200.0 µg/mL	+/- 5.1667
6	n-Octadecane (C18)	593-45-3	UE5NG	99%	200.0 µg/mL	+/- 5.1667
7	n-Eicosane (C20)	112-95-8	MKCN8767	99%	200.0 µg/mL	+/- 5.1667
8	n-Heneicosane (C21)	629-94-7	MKCP1960	99%	200.3 µg/mL	+/- 5.1753
9	n-Docosane (C22)	629-97-0	MKCQ3729	99%	200.0 µg/mL	+/- 5.1667
10	n-Tetracosane (C24)	646-31-1	UH5GN	99%	200.0 µg/mL	+/- 5.1667
11	n-Hexacosane (C26)	630-01-3	MKCV0107	99%	200.0 µg/mL	+/- 5.1667
12	n-Octacosane (C28)	630-02-4	BCCM2091	99%	200.0 µg/mL	+/- 5.1667
13	n-Triacontane (C30)	638-68-6	MKCW9459	99%	200.0 µg/mL	+/- 5.1667
14	n-Dotriacontane (C32)	544-85-4	BCBW0661	99%	200.0 µg/mL	+/- 5.1667
15	n-Tetratriacontane (C34)	14167-59-0	6JNHB	99%	200.0 µg/mL	+/- 5.1667
16	n-Hexatriacontane (C36)	630-06-8	U30H007	99%	200.0 µg/mL	+/- 5.1667
17	n-Octatriacontane (C38)	7194-85-6	0000207852	96%	200.0 µg/mL	+/- 5.1667

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P14127 (13) → P14141 / 9/16/25

Catalog No. : 30542 **Lot No.:** A0226411

Description : NJEPH Aliphatics Matrix Spike Mix

NJEPH Aliphatics Matrix Spike Mix 200 µg/mL, n-Pentane, 5mL/ampul

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	n-Nonane (C9)	111-84-2	SHBP9752	99%	200.3 µg/mL	+/- 5.1753
2	n-Decane (C10)	124-18-5	SHBS1019	99%	200.3 µg/mL	+/- 5.1753
3	n-Dodecane (C12)	112-40-3	SHBP7054	99%	200.0 µg/mL	+/- 5.1667
4	n-Tetradecane (C14)	629-59-4	STBL2522	99%	200.0 µg/mL	+/- 5.1667
5	n-Hexadecane (C16)	544-76-3	SHBR0670	99%	200.0 µg/mL	+/- 5.1667
6	n-Octadecane (C18)	593-45-3	UE5NG	99%	200.0 µg/mL	+/- 5.1667
7	n-Eicosane (C20)	112-95-8	MKCN8767	99%	200.0 µg/mL	+/- 5.1667
8	n-Heneicosane (C21)	629-94-7	MKCP1960	99%	200.3 µg/mL	+/- 5.1753
9	n-Docosane (C22)	629-97-0	MKCQ3729	99%	200.0 µg/mL	+/- 5.1667
10	n-Tetracosane (C24)	646-31-1	UH5GN	99%	200.0 µg/mL	+/- 5.1667
11	n-Hexacosane (C26)	630-01-3	MKCV0107	99%	200.0 µg/mL	+/- 5.1667
12	n-Octacosane (C28)	630-02-4	BCCM2091	99%	200.0 µg/mL	+/- 5.1667
13	n-Triacontane (C30)	638-68-6	MKCW9459	99%	200.0 µg/mL	+/- 5.1667
14	n-Dotriacontane (C32)	544-85-4	BCBW0661	99%	200.0 µg/mL	+/- 5.1667
15	n-Tetratriacontane (C34)	14167-59-0	6JNHB	99%	200.0 µg/mL	+/- 5.1667
16	n-Hexatriacontane (C36)	630-06-8	U30H007	99%	200.0 µg/mL	+/- 5.1667
17	n-Octatriacontane (C38)	7194-85-6	0000207852	96%	200.0 µg/mL	+/- 5.1667

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Certificate #3222.02

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P12361 ↓ P12370 } Y.P. 03/16/23

Catalog No. : 30540 **Lot No.:** A0190424

Description : NJEPH Aliphatics Calibration Standard

Aliphatics Calibration Standard 2000µg/mL, Hexane/Carbon Disulfide (80:20), 1mL/ampul

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

Expiration Date : November 30, 2029 **Storage:** 25°C nominal

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	n-Nonane (C9) **CAS #** 111-84-2 (Lot SHBN5361) **Purity** 99%	2,014.0 µg/mL	+/- 11.8193 µg/mL +/- 50.0027 µg/mL +/- 59.9491 µg/mL	Gravimetric Unstressed Stressed
2	n-Decane (C10) **CAS #** 124-18-5 (Lot SHBN8619) **Purity** 99%	2,014.7 µg/mL	+/- 11.8232 µg/mL +/- 50.0193 µg/mL +/- 59.9689 µg/mL	Gravimetric Unstressed Stressed
3	Naphthalene **CAS #** 91-20-3 (Lot MKCH0219) **Purity** 99%	2,015.3 µg/mL	+/- 11.8271 µg/mL +/- 50.0358 µg/mL +/- 59.9888 µg/mL	Gravimetric Unstressed Stressed
4	n-Dodecane (C12) **CAS #** 112-40-3 (Lot SHBN7174) **Purity** 99%	2,008.0 µg/mL	+/- 11.7841 µg/mL +/- 49.8538 µg/mL +/- 59.7705 µg/mL	Gravimetric Unstressed Stressed
5	2-Methylnaphthalene **CAS #** 91-57-6 (Lot STBK0259) **Purity** 96%	2,007.0 µg/mL	+/- 11.7784 µg/mL +/- 49.8299 µg/mL +/- 59.7419 µg/mL	Gravimetric Unstressed Stressed
6	n-Tetradecane (C14) **CAS #** 629-59-4 (Lot STBK2282) **Purity** 99%	2,016.7 µg/mL	+/- 11.8349 µg/mL +/- 50.0689 µg/mL +/- 60.0284 µg/mL	Gravimetric Unstressed Stressed
7	n-Hexadecane (C16) **CAS #** 544-76-3 (Lot SHBM4146) **Purity** 98%	2,014.9 µg/mL	+/- 11.8244 µg/mL +/- 50.0246 µg/mL +/- 59.9753 µg/mL	Gravimetric Unstressed Stressed

8	n-Octadecane (C18) **CAS #** 593-45-3 **Purity** 97%	(Lot VZKOJ)	2,004.7	µg/mL	+/- 11.7645 +/- 49.7710 +/- 59.6712	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	n-Eicosane (C20) **CAS #** 112-95-8 **Purity** 99%	(Lot MKCF7888)	2,018.0	µg/mL	+/- 11.8428 +/- 50.1020 +/- 60.0681	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	n-Heneicosane (C21) **CAS #** 629-94-7 **Purity** 99%	(Lot MKCL3226)	2,000.7	µg/mL	+/- 11.7410 +/- 49.6717 +/- 59.5522	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	n-Docosane (C22) **CAS #** 629-97-0 **Purity** 99%	(Lot MKCL8918)	2,005.3	µg/mL	+/- 11.7684 +/- 49.7876 +/- 59.6911	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	n-Tetracosane (C24) **CAS #** 646-31-1 **Purity** 99%	(Lot MKCN2863)	2,018.0	µg/mL	+/- 11.8428 +/- 50.1020 +/- 60.0681	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexacosane (C26) **CAS #** 630-01-3 **Purity** 99%	(Lot MKCD4540)	2,014.0	µg/mL	+/- 11.8193 +/- 50.0027 +/- 59.9491	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	n-Octacosane (C28) **CAS #** 630-02-4 **Purity** 99%	(Lot BCCG0084)	2,002.0	µg/mL	+/- 11.7489 +/- 49.7048 +/- 59.5919	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	n-Triacontane (C30) **CAS #** 638-68-6 **Purity** 97%	(Lot MKCQ9436)	2,011.1	µg/mL	+/- 11.8025 +/- 49.9316 +/- 59.8637	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	n-Dotriacontane (C32) **CAS #** 544-85-4 **Purity** 99%	(Lot BCBW0661)	2,012.0	µg/mL	+/- 11.8075 +/- 49.9531 +/- 59.8895	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	n-Tetratriacontane (C34) **CAS #** 14167-59-0 **Purity** 99%	(Lot OML4N)	2,006.7	µg/mL	+/- 11.7762 +/- 49.8207 +/- 59.7308	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	n-Hexatriacontane (C36) **CAS #** 630-06-8 **Purity** 99%	(Lot Z27H018)	2,017.3	µg/mL	+/- 11.8388 +/- 50.0855 +/- 60.0483	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	n-Octatriacontane (C38) **CAS #** 7194-85-6 **Purity** 96%	(Lot 0000145137)	2,017.3	µg/mL	+/- 11.8385 +/- 50.0842 +/- 60.0467	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	n-Tetracontane (C40) **CAS #** 4181-95-7 **Purity** 99%	(Lot BSBME)	2,008.7	µg/mL	+/- 11.7880 +/- 49.8703 +/- 59.7903	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Hexane/Carbon disulfide (80:20)
CAS # 110-54-3/75-15-0
Purity 99%

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

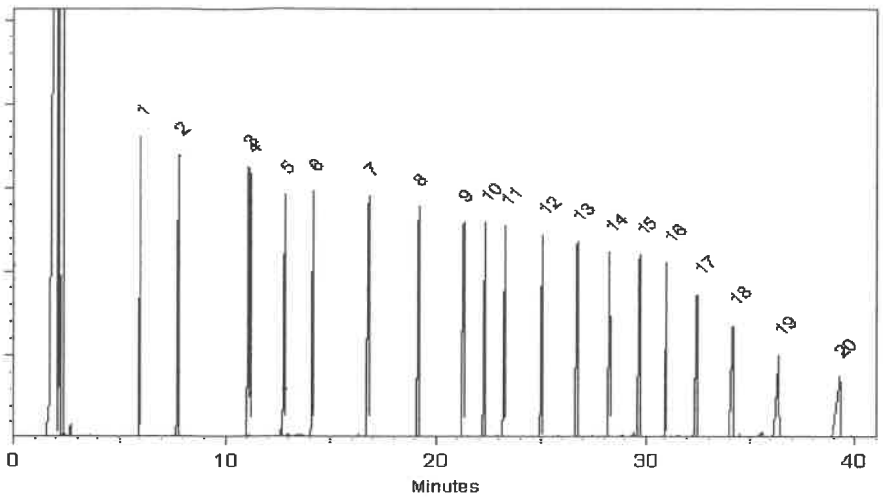
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Morgan Craighead - Mix Technician

Date Mixed: 10-Oct-2022 **Balance:** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 20-Oct-2022

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

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

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number: 95899
Lot Number: 040524
Description: NJ EPH Aliphatic n-Hydrocarbons - Revised
20 components
Expiration Date: 040534
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

Solvent(s):	Lot#
Cyclohexane	28930

P13278 & P13287 } Y.P. 04111124

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

5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 25.0 0.001 Flask Uncertainty
CAUTION: Sonicate Before Use

	Compound	(RM#) Part Number	Lot Number	Dil. Factor	Initial Vol. (mL)	Initial Conc.(ug/mL)	Nominal Conc (µg/mL)	Purity (%)	Purity Uncertainty	Uncertainty Pipette	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	2-Methylnaphthalene	(0214)	MKBF3783V	NA	NA	NA	1000	97	0.2	NA	0.02579	0.02594	1005.7	5.7	91-57-6	N/A	orl-rat 1630mg/kg
2.	Naphthalene	(0222)	MKBZ8680V	NA	NA	NA	1000	100	0.2	NA	0.02502	0.02511	1003.7	5.7	91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
3.	n-Nonane	95708	120222	1.00	25.00	1000.7	1000	NA	NA	0.013	NA	NA	1000.0	4.2	111-84-2	200 ppm (1050mg/m3/8H)	ivn-mus 218mg/kg
4.	n-Decane	95708	**120222**	1.00	25.00	1000.9	1000	NA	NA	0.013	NA	NA	1000.2	4.2	124-18-5	N/A	N/A
5.	n-Dodecane	95708	120222	1.00	25.00	1000.7	1000	NA	NA	0.013	NA	NA	1000.0	4.2	112-40-3	N/A	ivn-mus 3494mg/kg
6.	n-Tetradecane	95708	120222	1.00	25.00	1002.1	1000	NA	NA	0.013	NA	NA	1001.3	4.2	629-59-4	N/A	N/A
7.	n-Hexadecane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.7	4.2	544-76-3	N/A	N/A
8.	n-Octadecane	95708	120222	1.00	25.00	1001.0	1000	NA	NA	0.013	NA	NA	1000.3	4.1	593-45-3	N/A	N/A
9.	n-Eicosane	95708	120222	1.00	25.00	1001.0	1000	NA	NA	0.013	NA	NA	1000.3	4.2	112-95-8	N/A	N/A
10.	n-Heneicosane	95708	120222	1.00	25.00	1002.4	1000	NA	NA	0.013	NA	NA	1001.6	4.2	629-94-7	N/A	N/A
11.	n-Docosane	95708	120222	1.00	25.00	1001.9	1000	NA	NA	0.013	NA	NA	1001.2	4.2	629-97-0	N/A	N/A
12.	n-Tetracosane	95708	120222	1.00	25.00	1000.8	1000	NA	NA	0.013	NA	NA	1000.1	4.2	646-31-1	N/A	N/A
13.	n-Hexacosane	95708	120222	1.00	25.00	1001.2	1000	NA	NA	0.013	NA	NA	1000.4	4.2	630-01-3	N/A	N/A
14.	n-Octacosane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.8	4.2	630-02-4	N/A	N/A
15.	n-Triacontane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.8	4.2	638-68-6	N/A	N/A
16.	n-Dotriacontane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.8	4.3	544-85-4	N/A	ivn-mus 100mg/kg
17.	n-Tetratriacontane	95708	120222	1.00	25.00	1000.4	1000	NA	NA	0.013	NA	NA	999.7	4.2	14167-59-0	N/A	N/A
18.	n-Hexatriacontane	95708	120222	1.00	25.00	1001.5	1000	NA	NA	0.013	NA	NA	1000.8	4.2	630-06-8	N/A	N/A
19.	n-Octatriacontane	95708	120222	1.00	25.00	1000.3	1000	NA	NA	0.013	NA	NA	999.6	4.3	7194-85-6	N/A	N/A
20.	n-Tetracontane	95708	120222	1.00	25.00	1000.6	1000	NA	NA	0.013	NA	NA	999.9	4.3	4181-95-7	N/A	N/A

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

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

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number: 95899
Lot Number: 040524
Description: NJ EPH Aliphatic n-Hydrocarbons - Revised
20 components
Expiration Date: 040534
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

Solvent(s):	Lot#
Cyclohexane	28930

P13278 & P13287 } Y.P. 04111124

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

5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 25.0 0.001 Flask Uncertainty
CAUTION: Sonicate Before Use

	Compound	(RM#) Part Number	Lot Number	Dil. Factor	Initial Vol. (mL)	Initial Conc.(ug/mL)	Nominal Conc (µg/mL)	Purity (%)	Purity Uncertainty	Uncertainty Pipette	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	2-Methylnaphthalene	(0214)	MKBF3783V	NA	NA	NA	1000	97	0.2	NA	0.02579	0.02594	1005.7	5.7	91-57-6	N/A	orl-rat 1630mg/kg
2.	Naphthalene	(0222)	MKBZ8680V	NA	NA	NA	1000	100	0.2	NA	0.02502	0.02511	1003.7	5.7	91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
3.	n-Nonane	95708	120222	1.00	25.00	1000.7	1000	NA	NA	0.013	NA	NA	1000.0	4.2	111-84-2	200 ppm (1050mg/m3/8H)	ivn-mus 218mg/kg
4.	n-Decane	95708	**120222**	1.00	25.00	1000.9	1000	NA	NA	0.013	NA	NA	1000.2	4.2	124-18-5	N/A	N/A
5.	n-Dodecane	95708	120222	1.00	25.00	1000.7	1000	NA	NA	0.013	NA	NA	1000.0	4.2	112-40-3	N/A	ivn-mus 3494mg/kg
6.	n-Tetradecane	95708	120222	1.00	25.00	1002.1	1000	NA	NA	0.013	NA	NA	1001.3	4.2	629-59-4	N/A	N/A
7.	n-Hexadecane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.7	4.2	544-76-3	N/A	N/A
8.	n-Octadecane	95708	120222	1.00	25.00	1001.0	1000	NA	NA	0.013	NA	NA	1000.3	4.1	593-45-3	N/A	N/A
9.	n-Eicosane	95708	120222	1.00	25.00	1001.0	1000	NA	NA	0.013	NA	NA	1000.3	4.2	112-95-8	N/A	N/A
10.	n-Heneicosane	95708	120222	1.00	25.00	1002.4	1000	NA	NA	0.013	NA	NA	1001.6	4.2	629-94-7	N/A	N/A
11.	n-Docosane	95708	120222	1.00	25.00	1001.9	1000	NA	NA	0.013	NA	NA	1001.2	4.2	629-97-0	N/A	N/A
12.	n-Tetracosane	95708	120222	1.00	25.00	1000.8	1000	NA	NA	0.013	NA	NA	1000.1	4.2	646-31-1	N/A	N/A
13.	n-Hexacosane	95708	120222	1.00	25.00	1001.2	1000	NA	NA	0.013	NA	NA	1000.4	4.2	630-01-3	N/A	N/A
14.	n-Octacosane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.8	4.2	630-02-4	N/A	N/A
15.	n-Triacontane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.8	4.2	638-68-6	N/A	N/A
16.	n-Dotriacontane	95708	120222	1.00	25.00	1000.5	1000	NA	NA	0.013	NA	NA	999.8	4.3	544-85-4	N/A	ivn-mus 100mg/kg
17.	n-Tetratriacontane	95708	120222	1.00	25.00	1000.4	1000	NA	NA	0.013	NA	NA	999.7	4.2	14167-59-0	N/A	N/A
18.	n-Hexatriacontane	95708	120222	1.00	25.00	1001.5	1000	NA	NA	0.013	NA	NA	1000.8	4.2	630-06-8	N/A	N/A
19.	n-Octatriacontane	95708	120222	1.00	25.00	1000.3	1000	NA	NA	0.013	NA	NA	999.6	4.3	7194-85-6	N/A	N/A
20.	n-Tetracontane	95708	120222	1.00	25.00	1000.6	1000	NA	NA	0.013	NA	NA	999.9	4.3	4181-95-7	N/A	N/A

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31098 **Lot No.:** A0213283

Description : 1-Chlorooctadecane Standard

1-Chlorooctadecane Standard 10,000µg/mL, Methylene Chloride, 1mL/ampul

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

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

Ship: Ambient

P13595
↓
P13624
Y.P.
10/16/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1-Chlorooctadecane	3386-33-2	15018900	99%	10,058.0 µg/mL	+/- 565.0578

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

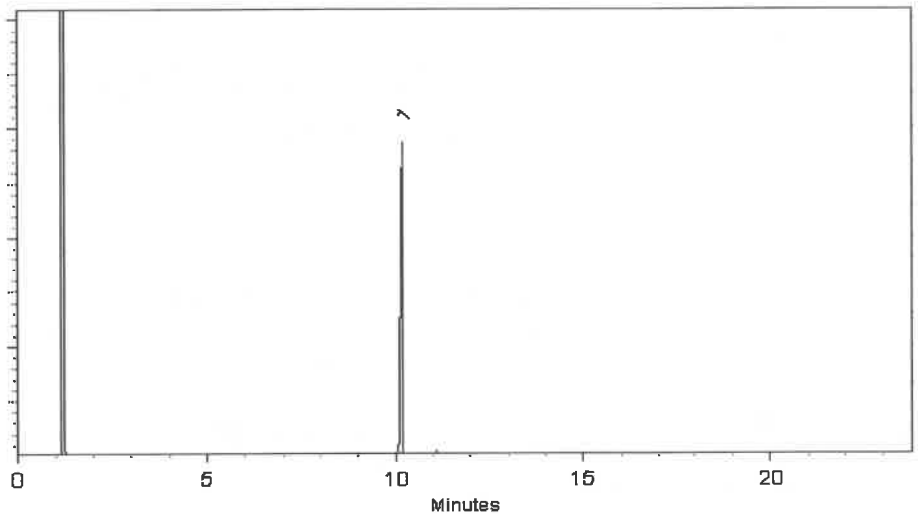
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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

Stacey Wanner - Operations Technician I

Date Mixed: 28-Jun-2024 **Balance Serial #** B345965662

Dillan Murphy - Operations Technician I

Date Passed: 01-Jul-2024

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

Manufacturing Notes:

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

Handling Notes:

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- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31097 **Lot No.:** A0216631

Description : o-Terphenyl Standard

o-Terphenyl Standard 10,000 µg/mL, Methylene Chloride, 1mL/ampul

P13645 ↓ P13694 } Y.P. 10/16/24

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	o-Terphenyl	84-15-1	GKSSA	99%	10,065.0 µg/mL	+/- 453.3336

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

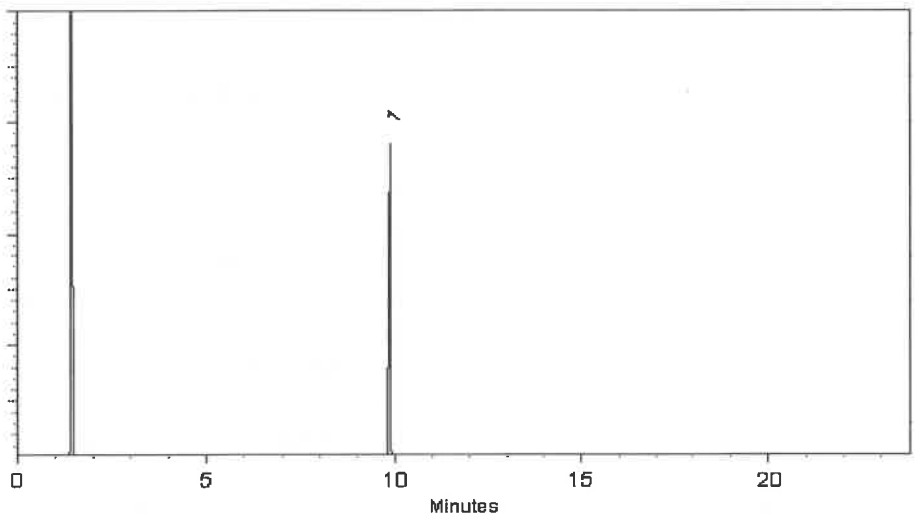
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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

Ven Kelley - Operations Tech I

Date Mixed: 17-Sep-2024 **Balance Serial #** 1128353505

Dillan Murphy - Operations Technician I

Date Passed: 23-Sep-2024

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

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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. : 30543 **Lot No.:** A0225381

Description : NJEPH Aromatics Matrix Spike Mix

NJEPH Aromatics Matrix Spike Mix 200µg/mL, Acetone/Toluene (50:50), 5mL/ampul

P13998 ↓ P14017 } RC/ 5/21/25

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

Expiration Date : April 30, 2031 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2,3-Trimethylbenzene	526-73-8	8776.10-39	98%	200.3 µg/mL	+/- 9.0255
2	Naphthalene	91-20-3	STBL1057	99%	200.4 µg/mL	+/- 9.0294
3	2-Methylnaphthalene	91-57-6	STBL3028	99%	200.4 µg/mL	+/- 9.0294
4	Acenaphthylene	208-96-8	214935V16F	97%	200.2 µg/mL	+/- 9.0208
5	Acenaphthene	83-32-9	MKCV8166	99%	200.0 µg/mL	+/- 9.0114
6	Fluorene	86-73-7	10246250	98%	200.3 µg/mL	+/- 9.0255
7	Phenanthrene	85-01-8	MKCV8193	99%	200.8 µg/mL	+/- 9.0474
8	Anthracene	120-12-7	101492T18R	99%	200.4 µg/mL	+/- 9.0294
9	Fluoranthene	206-44-0	A0458721	99%	200.4 µg/mL	+/- 9.0294
10	Pyrene	129-00-0	BCCK2592	99%	200.8 µg/mL	+/- 9.0474
11	Benz(a)anthracene	56-55-3	I70012022BAA	99%	200.4 µg/mL	+/- 9.0294
12	Chrysene	218-01-9	RP250121RSR	99%	200.0 µg/mL	+/- 9.0114
13	Benzo(b)fluoranthene	205-99-2	022013B	99%	200.4 µg/mL	+/- 9.0294
14	Benzo(k)fluoranthene	207-08-9	012022K	99%	200.4 µg/mL	+/- 9.0294
15	Benzo(a)pyrene	50-32-8	NQLXA	98%	200.7 µg/mL	+/- 9.0431
16	Indeno(1,2,3-cd)pyrene	193-39-5	12-JKL-118-9	97%	200.6 µg/mL	+/- 9.0383

17	Dibenz(a,h)anthracene	53-70-3	712061504-1-1	99%	200.4	µg/mL	+/- 9.0294
18	Benzo(g,h,i)perylene	191-24-2	RP250219RSR	99%	200.0	µg/mL	+/- 9.0114

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

Solvent: Acetone/Toluene (50:50)
CAS # 67-64-1/108-88-3
Purity 99%

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
100°C (hold 1 min.) to 330°C
@ 4°C/min. (hold 5 min.)

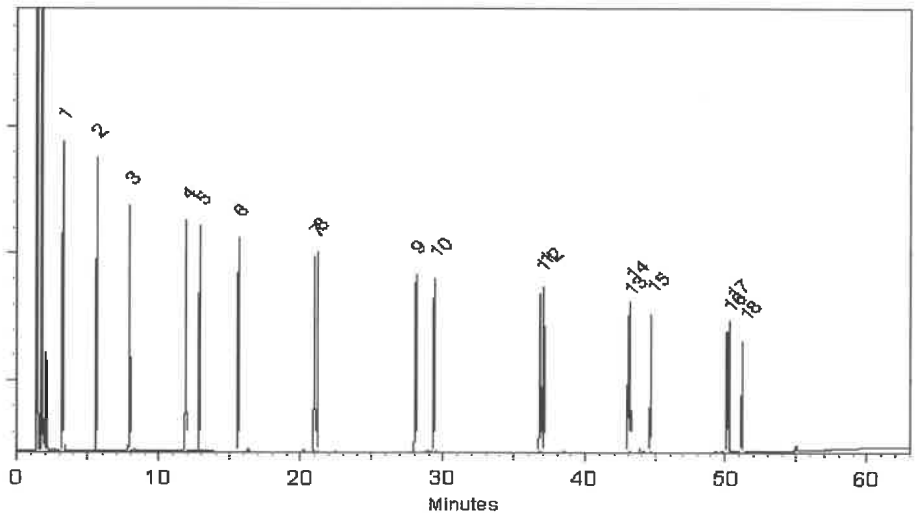
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
20 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.

Richard Zimmerman - Operations Tech I

Date Mixed: 06-May-2025 **Balance Serial #** 1128353505

Brittany Federinko - Operations Tech II

Date Passed: 09-May-2025

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

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31098 **Lot No.:** A0225485

Description : 1-Chlorooctadecane Standard

1-Chlorooctadecane Standard 10,000µg/mL, Methylene Chloride, 1mL/ampul

P140028 ↓ P140042 RC 6/2/25

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

Expiration Date : June 30, 2032 **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-Chlorooctadecane	3386-33-2	15711200	99%	10,006.8 µg/mL	+/- 562.1814

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

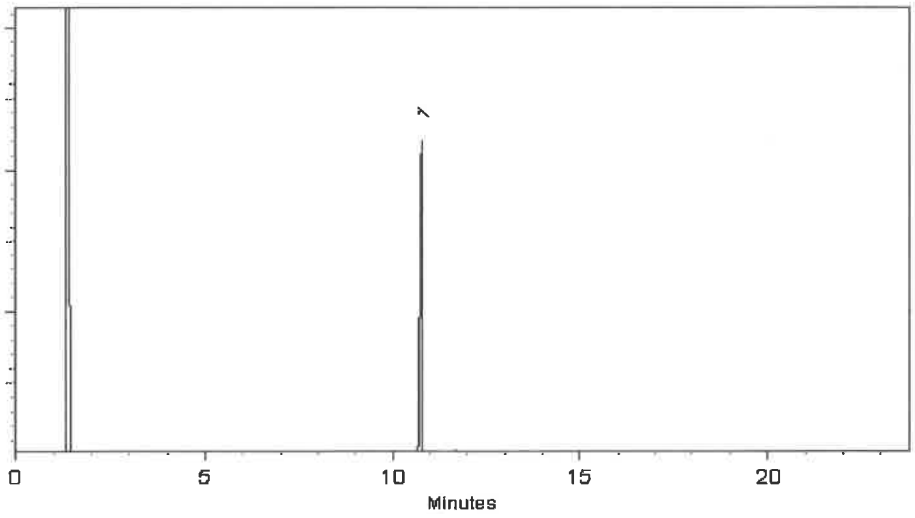
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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Sam Moodler - Operations Tech I

Date Mixed: 08-May-2025 **Balance Serial #** 1128360905

Brittany Federinko - Operations Tech II

Date Passed: 13-May-2025

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

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1-Chlorooctadecane Standard 10,000µg/mL, Methylene Chloride, 1mL/ampul

P140028 ↓ P140042 RC 6/2/25

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

Expiration Date : June 30, 2032 **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-Chlorooctadecane	3386-33-2	15711200	99%	10,006.8 µg/mL	+/- 562.1814

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

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

Quality Confirmation Test

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Rtx-5 (cat.#10223)

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Inj. Temp:
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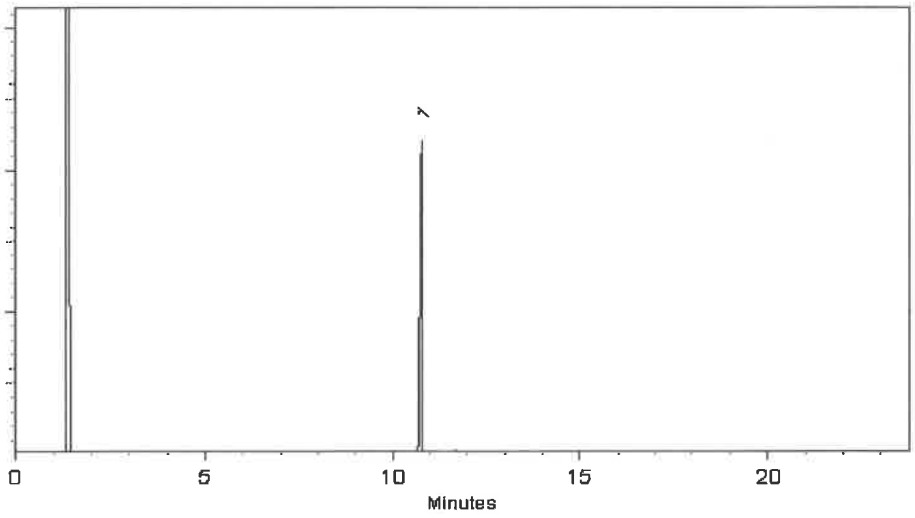
Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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Sam Moodler - Operations Tech I

Date Mixed: 08-May-2025 **Balance Serial #** 1128360905

Brittany Federinko - Operations Tech II

Date Passed: 13-May-2025

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Description : 1-Chlorooctadecane Standard

1-Chlorooctadecane Standard 10,000µg/mL, Methylene Chloride, 1mL/ampul

P140028 ↓ P140042 RC 6/2/25

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

Expiration Date : June 30, 2032 **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-Chlorooctadecane	3386-33-2	15711200	99%	10,006.8 µg/mL	+/- 562.1814

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

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

Quality Confirmation Test

Column:
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Rtx-5 (cat.#10223)

Carrier Gas:
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Temp. Program:
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Det. Type:
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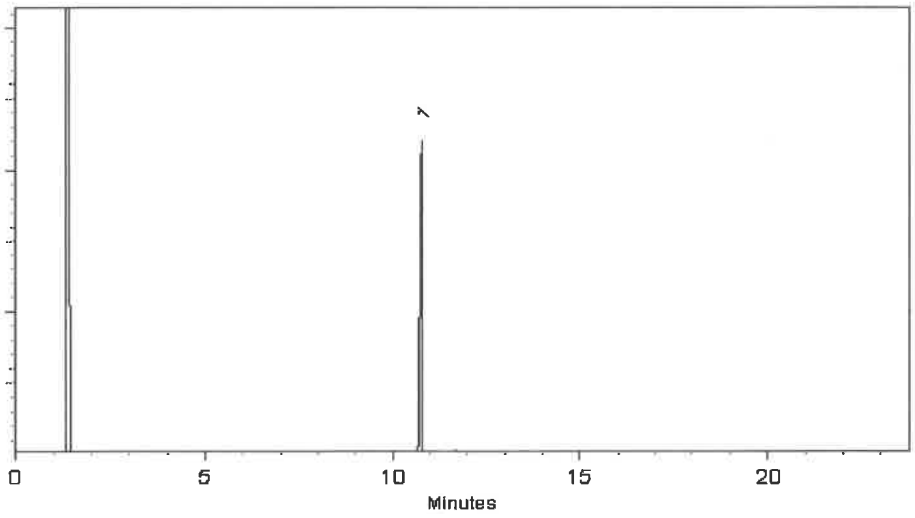
Split Vent:
10 ml/min.

Inj. Vol
1µl



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Sam Moodler - Operations Tech I

Date Mixed: 08-May-2025 **Balance Serial #** 1128360905

Brittany Federinko - Operations Tech II

Date Passed: 13-May-2025

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Catalog No. : 31098 **Lot No.:** A0225485

Description : 1-Chlorooctadecane Standard

1-Chlorooctadecane Standard 10,000µg/mL, Methylene Chloride, 1mL/ampul

P140028 ↓ P140042 RC 6/2/25

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

Expiration Date : June 30, 2032 **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-Chlorooctadecane	3386-33-2	15711200	99%	10,006.8 µg/mL	+/- 562.1814

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

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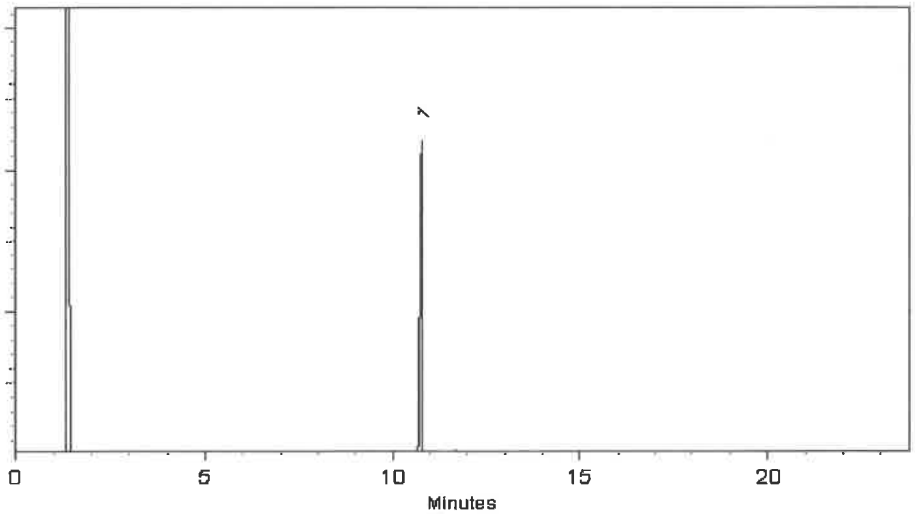
Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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Sam Moodler - Operations Tech I

Date Mixed: 08-May-2025 **Balance Serial #** 1128360905

Brittany Federinko - Operations Tech II

Date Passed: 13-May-2025

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Catalog No. : 31098 **Lot No.:** A0225485

Description : 1-Chlorooctadecane Standard

1-Chlorooctadecane Standard 10,000µg/mL, Methylene Chloride, 1mL/ampul

P140028 ↓ P140042 RC 6/2/25

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

Expiration Date : June 30, 2032 **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-Chlorooctadecane	3386-33-2	15711200	99%	10,006.8 µg/mL	+/- 562.1814

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

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

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

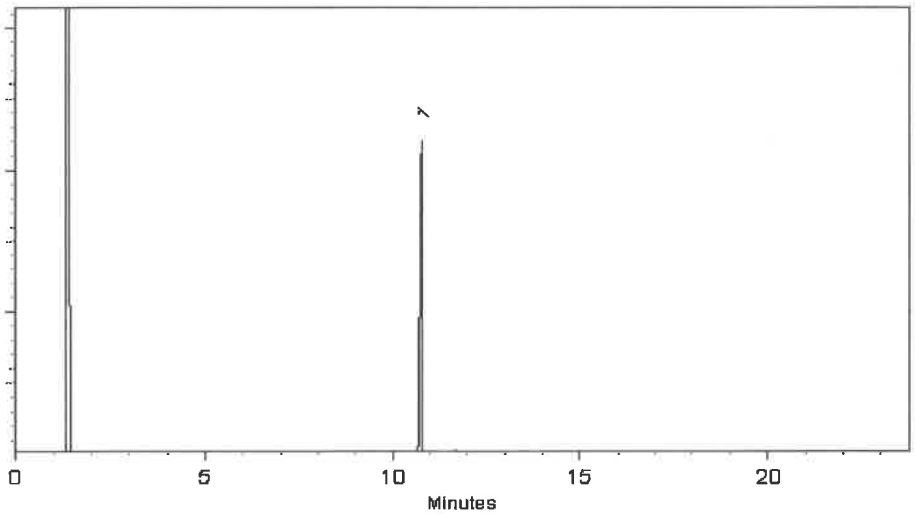
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
10 ml/min.

Inj. Vol
1µl



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Sam Moodler - Operations Tech I

Date Mixed: 08-May-2025 **Balance Serial #** 1128360905

Brittany Federinko - Operations Tech II

Date Passed: 13-May-2025

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

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 30542 **Lot No.:** A0220449

Description : NJEPH Aliphatics Matrix Spike Mix

NJEPH Aliphatics Matrix Spike Mix 200 µg/mL, n-Pentane, 5mL/ampul

P14084 ↓ P14093 } AC 7/16/25

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

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

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	n-Nonane (C9)	111-84-2	SHBP9752	99%	201.3 µg/mL	+/- 5.2012
2	n-Decane (C10)	124-18-5	SHBQ1342	99%	201.7 µg/mL	+/- 5.2098
3	n-Dodecane (C12)	112-40-3	SHBP7054	99%	201.3 µg/mL	+/- 5.2012
4	n-Tetradecane (C14)	629-59-4	STBL0465	99%	200.7 µg/mL	+/- 5.1839
5	n-Hexadecane (C16)	544-76-3	SHBR0669	99%	200.3 µg/mL	+/- 5.1753
6	n-Octadecane (C18)	593-45-3	UE5NG	99%	200.7 µg/mL	+/- 5.1839
7	n-Eicosane (C20)	112-95-8	MKCN8767	97%	200.1 µg/mL	+/- 5.1704
8	n-Heneicosane (C21)	629-94-7	MKCP1960	99%	200.7 µg/mL	+/- 5.1839
9	n-Docosane (C22)	629-97-0	MKCQ3882	99%	200.3 µg/mL	+/- 5.1753
10	n-Tetracosane (C24)	646-31-1	UH5GN	99%	201.3 µg/mL	+/- 5.2012
11	n-Hexacosane (C26)	630-01-3	MKCQ4814	99%	201.0 µg/mL	+/- 5.1926
12	n-Octacosane (C28)	630-02-4	BCCJ4566	99%	200.3 µg/mL	+/- 5.1753
13	n-Triacontane (C30)	638-68-6	MKCV7007	98%	201.2 µg/mL	+/- 5.1984
14	n-Dotriacontane (C32)	544-85-4	BCBW0661	99%	201.7 µg/mL	+/- 5.2098
15	n-Tetratriacontane (C34)	14167-59-0	6JNHB	99%	201.3 µg/mL	+/- 5.2012
16	n-Hexatriacontane (C36)	630-06-8	Z27H018	99%	201.7 µg/mL	+/- 5.2098
17	n-Octatriacontane (C38)	7194-85-6	0000207852	96%	201.6 µg/mL	+/- 5.2081

18	n-Tetracontane (C40)	4181-95-7	OKEGA	99%	201.3 µg/mL	+/- 5.2012

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

Solvent: n-Pentane
CAS # 109-66-0
Purity 99%

Quality Confirmation Test

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

Carrier Gas:
hydrogen-constant pressure 10 psi.

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

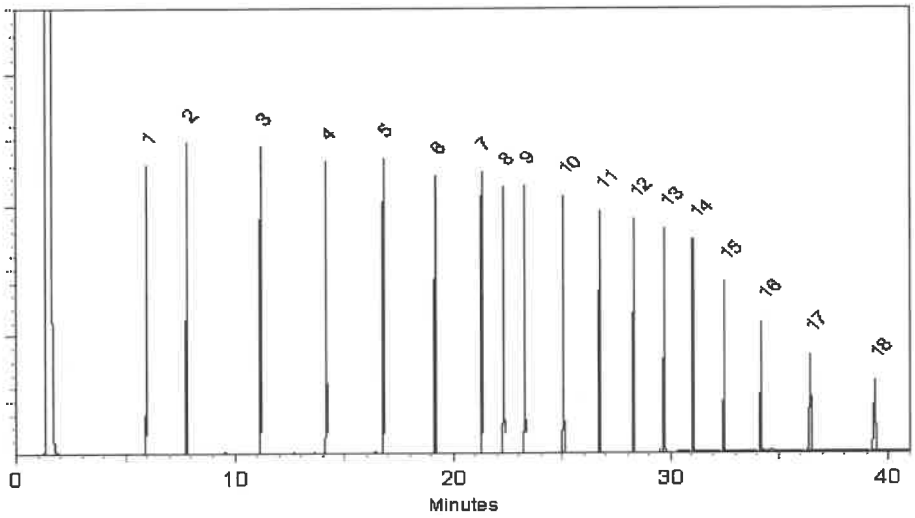
Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID

Split Vent:
2 ml/min.

Inj. Vol
1µl



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

Brandon Reish - Operations Technician III **Date Mixed:** 23-Dec-2024 **Balance Serial #** C322230531

Dillan Murphy - Operations Technician I **Date Passed:** 27-Dec-2024

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

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31480 **Lot No.:** A0227585

Description : MA Fractionation Surrogate Spike Mix

MA Fractionation Surrogate Spike Mix 4000µg/mL, Hexane, 1mL/ampul

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

Expiration Date : June 30, 2031 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Fluorobiphenyl	321-60-8	00024555	99%	4,006.0 µg/mL	+/- 180.4609
2	2-Bromonaphthalene	580-13-2	STBC5362V	99%	4,012.0 µg/mL	+/- 180.7312

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

Solvent: Hexane
CAS # 110-54-3
Purity 99%

P14170
↓
P14189
(20)

10/3/2025

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P14195 (40) → P14234

Catalog No. : 30543 **Lot No.:** A0231145

Description : NJEPH Aromatics Matrix Spike Mix

NJEPH Aromatics Matrix Spike Mix 200µg/mL, Acetone/Toluene (50:50), 5mL/ampul

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

Expiration Date : September 30, 2031 **Storage:** 10°C or colder

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1	1,2,3-Trimethylbenzene	526-73-8	8776.10-39	98%	200.7 µg/mL	+/- 9.0431
2	Naphthalene	91-20-3	STBK9311	99%	200.8 µg/mL	+/- 9.0474
3	2-Methylnaphthalene	91-57-6	STBL3028	99%	200.4 µg/mL	+/- 9.0294
4	Acenaphthylene	208-96-8	214935V18H	95%	200.6 µg/mL	+/- 9.0402
5	Acenaphthene	83-32-9	MKCV8166	99%	200.0 µg/mL	+/- 9.0114
6	Fluorene	86-73-7	10246250	98%	201.1 µg/mL	+/- 9.0608
7	Phenanthrene	85-01-8	MKCV8193	99%	200.4 µg/mL	+/- 9.0294
8	Anthracene	120-12-7	MKCW9141	99%	201.2 µg/mL	+/- 9.0655
9	Fluoranthene	206-44-0	A0458721	99%	200.8 µg/mL	+/- 9.0474
10	Pyrene	129-00-0	BCCL8032	99%	200.8 µg/mL	+/- 9.0474
11	Benz(a)anthracene	56-55-3	I80012022BAA	99%	200.8 µg/mL	+/- 9.0474
12	Chrysene	218-01-9	RP250926RSR	99%	200.4 µg/mL	+/- 9.0294
13	Benzo(b)fluoranthene	205-99-2	022013B	99%	200.8 µg/mL	+/- 9.0474
14	Benzo(k)fluoranthene	207-08-9	012022K	99%	201.2 µg/mL	+/- 9.0655
15	Benzo(a)pyrene	50-32-8	NQLXA	98%	200.7 µg/mL	+/- 9.0431
16	Indeno(1,2,3-cd)pyrene	193-39-5	17-YMK-40-2	99%	200.8 µg/mL	+/- 9.0474

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P14195 (40) → P14234

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NJEPH Aromatics Matrix Spike Mix 200µg/mL, Acetone/Toluene (50:50), 5mL/ampul

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

Expiration Date : September 30, 2031 **Storage:** 10°C or colder

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

10/21/25

CERTIFIED VALUES

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

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n-Hexane 95%
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W3234 JB
Update: 07/28/2025

Material No.: 9262-03
Batch No.: 25C0362005
Manufactured Date: 2025-01-29
Expiration Date:2026-04-30
Revision No.: 0

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Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL)	<= 5	1
ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)	<= 10	6
ECD-Sensitive Impurities (as EthyleneDibromide) - Single Impurity Peak (ng/mL)	<= 5	5
Assay (Total Saturated C_6 Isomers) (byGC, corrected for water)	>= 99.5 %	100.0 %
Assay (as n-Hexane) (by GC, correctedfor water)	>= 95 %	100 %
Color (APHA)	<= 10	10
Residue after Evaporation	<= 1.0 ppm	0.1 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	<= 0.05 %	<0.01 %

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

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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