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Prep Standard - Chemical Standard Summary

Order ID : Q3368

Test : TCLP Herbicide

Prepbatch ID : PB170386,

Sequence ID/Qc Batch ID: ps110425,pS110625,

Standard ID :
EP2633,EP2653,EP2654,PP24921,PP24922,PP24923,PP24929,PP24945,PP24999,PP25043,PP25044,PP25045,PP25047,PP25049,

Chemical ID :
E3875,E3882,E3952,E3966,E3969,E3972,E3974,E3978,E3983,M6157,M6186,P12621,P12662,P12687,P13547,P13548,P13549,P13550,P14071,P14073,P14142,P14143,P14144,P14145,P14162,P8830,W3112,W3240,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
601	Acidified Sodium Sulphate 2	EP2633	08/15/2025	11/07/2025	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Riteshkumar Patel 08/18/2025

FROM 1000.00000ml of E3952 + 150.00000ml of M6157 + 3000.00000ml of E3875 = Final Quantity: 3000.000 gram

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3883	12N H2SO4 solution	EP2653	10/22/2025	04/22/2026	RUPESHKUMAR SHAH	None	None	Yogesh Patel 11/06/2025

FROM 333.00000ml of M6186 + 667.00000ml of W3112 = Final Quantity: 1000.000 ml

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3884	6 N NAOH	EP2654	10/22/2025	04/22/2026	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Yogesh Patel 11/06/2025

FROM 1000.00000ml of W3112 + 240.00000gram of E3882 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1851	2/200 PPM Herb Mega Mix 2nd Source	PP24921	08/07/2025	02/07/2026	Abdul Mirza	None	None	Yogesh Patel 09/22/2025

FROM 0.50000ml of P14071 + 1.00000ml of P13547 + 48.50000ml of E3966 = Final Quantity: 50.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1854	1000 PPB HERB MIX ICV STD	PP24922	08/07/2025	02/07/2026	Abdul Mirza	None	None	Yogesh Patel 09/22/2025

FROM 0.50000ml of E3966 + 0.50000ml of PP24921 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1691	750 PPB ICV HERB STD	PP24923	08/07/2025	02/07/2026	Abdul Mirza	None	None	Yogesh Patel 09/22/2025

FROM 0.25000ml of E3966 + 0.75000ml of PP24922 = 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
1848	5000/500000 PPB Herbicide Spike (Free Acid)	PP24929	09/18/2025	03/18/2026	Abdul Mirza	None	None	Yogesh Patel 09/19/2025

FROM 0.50000ml of P13550 + 1.00000ml of P13548 + 1.00000ml of P13549 + 47.50000ml of E3972 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1321	2/200 PPM Herb Mega Mix	PP24945	09/30/2025	03/30/2026	Abdul Mirza	None	None	Yogesh Patel 10/10/2025

FROM 0.20000ml of P8830 + 1.00000ml of P12621 + 1.00000ml of P12662 + 1.00000ml of P12687 + 1.00000ml of P14162 + 95.80000ml of E3974 = Final Quantity: 100.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
60	5000 PPB Herbicide Surg Spike (Free Acid)	PP24999	10/15/2025	04/13/2026	Abdul Mirza	None	None	Yogesh Patel 11/04/2025

FROM 1.00000ml of P14073 + 1.00000ml of P14142 + 1.00000ml of P14143 + 1.00000ml of P14144 + 1.00000ml of P14145 + 195.00000ml of E3978 = Final Quantity: 200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1452	1500 PPB HERB MIX STD	PP25043	11/07/2025	03/30/2026	Rahul Chavli	None	None	Yogesh Patel 11/10/2025

FROM 0.25000ml of W3240 + 0.75000ml of PP24945 = 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
1453	1000 PPB Herb MIX STD	PP25044	11/07/2025	03/30/2026	Rahul Chavli	None	None	Yogesh Patel 11/10/2025

FROM 0.50000ml of W3240 + 0.50000ml of PP24945 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1454	750 PPB Herb MIX STD	PP25045	11/07/2025	03/30/2026	Rahul Chavli	None	None	Yogesh Patel 11/10/2025

FROM 0.25000ml of W3240 + 0.75000ml of PP25044 = 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
1455	500 PPB Herb MIX STD	PP25047	11/07/2025	05/07/2026	Rahul Chavli	None	None	Yogesh Patel 11/10/2025

FROM

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1456	200 PPB Herb MIX STD	PP25049	11/07/2025	03/30/2026	Rahul Chavli	None	None	Yogesh Patel 11/10/2025

FROM 0.90000ml of W3240 + 0.10000ml of PP24945 = Final Quantity: 1.000 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 #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	240301-B077875	01/31/2028	07/30/2025 /	02/24/2025 / RUPESH	E3882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9244-03 / Ether, Anhydrous, Purified (cs/4x4L)	250419	05/31/2026	07/09/2025 / RUPESH	07/09/2025 / RUPESH	E3952

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	08/22/2025 / RUPESH	08/20/2025 / RUPESH	E3966

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9244-03 / Ether, Anhydrous, Purified (cs/4x4L)	250419	05/31/2026	09/05/2025 / Riteshkumar	09/04/2025 / Riteshkumar	E3969

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	24H1462005	05/24/2027	09/16/2025 / Evelyn	09/04/2025 / Riteshkumar	E3972

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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-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-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	25C0362006	04/13/2026	10/13/2025 / RUPESH	10/08/2025 / Riteshkumar	E3978

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J9335-3 / 2,2,4 TRIMETHYLPENTANE, RESI ANA,4L	M30L719	01/28/2027	11/03/2025 / RUPESH	10/29/2025 / RUPESH	E3983

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	24i1262013	11/07/2025	05/07/2025 / RUPESH	02/18/2025 / Mohan	M6157

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	07/12/2026	08/13/2025 / Sagar	08/06/2025 / Sagar	M6186

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32062 / Herbicide Mix, 500/8000, Standard #4 [methyl ester] 200ug/mL, hexane, 1mL/ampul	A0154920	03/30/2026	09/30/2025 / Abdul	07/03/2023 / Abdul	P12621

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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	32055 / Herbicide Mix, 500/8000, Standard #1 [methyl ester] 200ug/mL, hexane, 1mL/ampul	A0199693	03/30/2026	09/30/2025 / Abdul	07/14/2023 / Ankita	P12662

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32059 / Herbicide Mix#3 (Methyl Ester), 20000 ug/ml	A0199844	03/30/2026	09/30/2025 / Abdul	07/24/2023 / Abdul	P12687

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	02/07/2026	08/07/2025 / Abdul	09/24/2024 / Abdul	P13547

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	02/07/2026	08/07/2025 / Abdul	09/24/2024 / Abdul	P13547

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	03/18/2026	09/18/2025 / Abdul	09/24/2024 / Abdul	P13548

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	03/18/2026	09/18/2025 / Abdul	09/24/2024 / Abdul	P13548

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	03/18/2026	09/18/2025 / Abdul	09/24/2024 / Abdul	P13549

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	03/18/2026	09/18/2025 / Abdul	09/24/2024 / Abdul	P13549

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	03/18/2026	09/18/2025 / Abdul	09/24/2024 / Abdul	P13550

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151A / Chlorinated Herbicide Mixtures, Free Acids	0006810955	03/18/2026	09/18/2025 / Abdul	09/24/2024 / Abdul	P13550

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0221255	02/07/2026	08/07/2025 / Abdul	06/23/2025 / anahy	P14071

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0221255	04/15/2026	10/15/2025 / Abdul	06/23/2025 / anahy	P14073

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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	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0221255	10/31/2031	10/15/2025 / Abdul	08/01/2025 / yogesh	P14142

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0221255	04/15/2026	10/15/2025 / Abdul	08/01/2025 / yogesh	P14143

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0221255	04/15/2026	10/15/2025 / Abdul	08/01/2025 / yogesh	P14144

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0221255	04/15/2026	10/15/2025 / Abdul	08/01/2025 / yogesh	P14145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32050 / Herbicide, 8000 series, 515 Surrogate [ester] 2,4-dichlorophenyl acetic acid methyl ester, 1mL, 200ug/mL, Hexane	A0172864	03/30/2026	09/30/2025 / Abdul	09/26/2025 / Abdul	P14162

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32254 / Dalapon Methyl Ester, 1000 ug/ml	A0148063	03/30/2026	09/30/2025 / Abdul	08/16/2019 / Stephen	P8830

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CHEMICAL RECEIPT LOG BOOK

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

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	04/30/2026	09/15/2025 / JIGNESH	09/12/2025 / JIGNESH	W3240

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
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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

PHARMCO
by Greenfield Global

CERTIFICATE OF ANALYSIS

Product Name	Sodium Hydroxide Pellets
Grade	ACS/NF/EP/BP Grade
Catalog #	289ACSNFEPBP
Item #	103433
Batch #	240301-B077875
Date of Manufacture:	01 Feb 2024
Recommended Retest Date:	31 Jan 2028
Customer PO #	6058164
Packaging Type	Drum Fiber 50 Kg

TEST	MONO-GRAPH	SPECIFICATION	RESULT	UNITS
Assay	ACS	NLT 97.0%	98.7	%
Assay - Total Alkali	NF	95.0% - 100.5%	98.7	%
Assay - Content of Sodium	NF	54.0% - 59.8%	56.7	%
Appearance of solution	EP/BP	The solution is clear and colourless	Pass	N/A
Sodium Carbonate (Na2CO3)	ACS	1.0% max.	0.5	%
Sodium Carbonate (Na2CO3)	NF	3.0% max.	0.5	%
Carbonates	EP/BP	Maximum 2.0%, calculated as Na2CO3	0.5	%
Sulfate (SO4)	ACS	0.003% max.	LT 0.002%	N/A
Sulfates	EP/BP	Maximum 200 ppm	LT 20 ppm	N/A
Chloride (Cl)	ACS	0.005% max.	LT 0.005%	N/A
Chlorides	EP/BP	Maximum 200 ppm	LT 50 ppm	N/A
Nitrogen Compounds (as N)	ACS	0.001% max.	LT 0.001%	N/A
Phosphate (PO4)	ACS	0.001% max.	LT 0.001%	N/A
Heavy Metals (as Ag)	ACS	0.002% max	LT 0.002%	N/A
Iron (Fe)	ACS	0.001% max.	LT 0.001%	N/A

E3882 E3884
E3883 E3885

ThermoFisher SCIENTIFIC

Fisher Scientific UK Ltd.
755 US Highway
Bridgewater,
NJ 08807 202, United States of America

CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek Global Certificate Number. CERT-0120633

Catalogue Number	E198
Lot Number	250419
Description	ETHYL ETHER, HPLC GRADE
CAS Number	60-29-7
Quality Test/Release Date	02/Jun/2025
Suggested retest date	31/May/2026
Country of Origin	Mexico
Declaration of Origin	Organic - synthetic
BSE/TSE	This product was derived from synthetic raw materials and the manufacturing process excluded contamination with any animal products.

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid free of suspended matter
ASSAY	%	>= 99	99.95
CARBONYL COMPOUNDS	%	<= 0.001	<0.001
COLOR	APHA	<= 10	5
DENSITY AT 25 DEGREES C	GM/ML	Inclusive Between 0.708 - 0.710	0.710
EVAPORATION RESIDUE	ppm	<= 5	0.1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
OPTICAL ABS AT 218 NM	ABSORBANCE UNITS	<= 1.00	0.15
OPTICAL ABS AT 254 NM	ABSORBANCE UNITS	<= 0.07	0.03
OPTICAL ABS AT 280 NM	ABSORBANCE UNITS	<= 0.02	0.003
OPTICAL ABS AT 350 NM	ABSORBANCE UNITS	<= 0.01	<0.001
PEROXIDE	ppm	<= 5	<1
PRESERVATIVE - ETHANOL	%	Inclusive Between 1.5 - 2.5	1.6
REFRACTIVE INDEX @ 25 DEG C		Inclusive Between 1.3490 - 1.3520	1.3498
SUBSTANCES DARKENED BY H2SO4	PASS/FAIL	= PASS TEST	PASS TEST
TITRATABLE ACID	MEQ/G	<= 0.0002	<0.00003
WATER (H2O)	%	<= 0.01	0.008

Matthew Micek
QC Supervisior

Received on 7/9/25

E3952

PO: PO2-2575 PRODUCT CODE: SHIP DATE: 6/20/25

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

E 3966

Jamie Croak
Director Quality Operations, Bioscience Production

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

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

ThermoFisher SCIENTIFIC

Fisher Scientific UK Ltd.
755 US Highway
Bridgewater,
NJ 08807 202, United States of America

CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek Global Certificate Number. CERT-0120633

Catalogue Number	E198
Lot Number	250419
Description	ETHYL ETHER, HPLC GRADE
CAS Number	60-29-7
Quality Test/Release Date	02/Jun/2025
Suggested retest date	31/May/2026
Country of Origin	Mexico
Declaration of Origin	Organic - synthetic
BSE/TSE	This product was derived from synthetic raw materials and the manufacturing process excluded contamination with any animal products.

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid free of suspended matter
ASSAY	%	>= 99	99.95
CARBONYL COMPOUNDS	%	<= 0.001	<0.001
COLOR	APHA	<= 10	5
DENSITY AT 25 DEGREES C	GM/ML	Inclusive Between 0.708 - 0.710	0.710
EVAPORATION RESIDUE	ppm	<= 5	0.1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
OPTICAL ABS AT 218 NM	ABSORBANCE UNITS	<= 1.00	0.15
OPTICAL ABS AT 254 NM	ABSORBANCE UNITS	<= 0.07	0.03
OPTICAL ABS AT 280 NM	ABSORBANCE UNITS	<= 0.02	0.003
OPTICAL ABS AT 350 NM	ABSORBANCE UNITS	<= 0.01	<0.001
PEROXIDE	ppm	<= 5	<1
PRESERVATIVE - ETHANOL	%	Inclusive Between 1.5 - 2.5	1.6
REFRACTIVE INDEX @ 25 DEG C		Inclusive Between 1.3490 - 1.3520	1.3498
SUBSTANCES DARKENED BY H2SO4	PASS/FAIL	= PASS TEST	PASS TEST
TITRATABLE ACID	MEQ/G	<= 0.0002	<0.00003
WATER (H2O)	%	<= 0.01	0.008

Matthew Micek
QC Supervisior

E3969

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

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

Certificate of Analysis

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

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

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

E3972

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

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 3978

J Croak

Jamie Croak
Director Quality Operations, Bioscience Production

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

ThermoFisher SCIENTIFIC
The world leader in serving science

Thermo Fisher Scientific
30 Bond Street
Ward Hill MA 01830

Certificate of Analysis

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by TUV SUD America Certification Number: 951001163

Catalogue Number:	031787
LOT Number:	M30L719
CAS Number:	540-84-1
Description	2,2,4-Trimethylpentane, ACS, 99+%
Quality Test/Release Date:	28/Jan/2025
Retest Date:	28/Jan/2027
Country of Origin:	Germany
Declaration of Origin:	Synthetic

Result Name	Units	Specification	Test Value
Color (APHA)		10, max	5
Assay (GC)	%	|>99.0%	99.94
Appearance (Color)		Colorless	Colorless
Free acid (titration)	meq/g	0.003meq/g, max (in the water soluble fraction)	0.0001
Form		Liquid	Liquid
Impurity content	%	Sulfur compounds (as S): 0.005%, max	<0.0001
Residue on Evaporation	%	0.001%, max	<0.00003

Additional Information

Certified by:

Seth Christopher

Mr. Seth Christopher.
Quality Manager – Ward Hill

Recieved on 10/29/25

E3983

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

avantor | J.T.Baker

M615 MB

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

Certificate of Analysis

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

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

avantor™ | J.T.Baker

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

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

For Laboratory,Research,or Manufacturing Use

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

J Croak

Jamie Croak
Director Quality Operations, Bioscience Production

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

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

avantor™ | J.T.Baker®

M6186

Recien Date :- 08/06/25

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

Certificate of Analysis

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

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

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

For Laboratory,Research,or Manufacturing Use

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

James T Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 286 1700

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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.

P12616 (S)
→ P12620
7/5/2023

Catalog No. : 32062 **Lot No.:** A0155055

Description : Herbicide Mix #4/ME (Methyl Ester)

Herbicide Mix #4/ME (Methyl Ester) 200µg/mL, Hexane/Methyl-tert-butyl-ether, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	3,5-Dichlorobenzoic acid methyl ester **CAS #** 2905-67-1 (Lot 3903900) **Purity** 99%	200.0 µg/mL	+/- 1.4182 µg/mL +/- 6.7507 µg/mL +/- 6.7507 µg/mL	Gravimetric Unstressed Stressed
2	4-Nitroanisole **CAS #** 100-17-4 (Lot 24765/7) **Purity** 99%	200.0 µg/mL	+/- 1.4182 µg/mL +/- 6.7507 µg/mL +/- 6.7507 µg/mL	Gravimetric Unstressed Stressed
3	Pentachloroanisole **CAS #** 1825-21-4 (Lot 7921100) **Purity** 99%	200.0 µg/mL	+/- 1.4182 µg/mL +/- 6.7507 µg/mL +/- 6.7507 µg/mL	Gravimetric Unstressed Stressed
4	Chloramben methyl ester **CAS #** 7286-84-2 (Lot 6487100) **Purity** 98%	199.9 µg/mL	+/- 1.4176 µg/mL +/- 6.7480 µg/mL +/- 6.7480 µg/mL	Gravimetric Unstressed Stressed
5	Bentazon methyl ester **CAS #** 61592-45-8 (Lot 817100) **Purity** 99%	200.0 µg/mL	+/- 1.4182 µg/mL +/- 6.7507 µg/mL +/- 6.7507 µg/mL	Gravimetric Unstressed Stressed
6	Picloram methyl ester **CAS #** 14143-55-6 (Lot 386-21B) **Purity** 98%	201.9 µg/mL	+/- 1.4315 µg/mL +/- 6.8141 µg/mL +/- 6.8141 µg/mL	Gravimetric Unstressed Stressed
7	DCPA methyl ester (Chlorthal-dimethyl) **CAS #** 1861-32-1 (Lot 8008700) **Purity** 99%	200.0 µg/mL	+/- 1.4182 µg/mL +/- 6.7507 µg/mL +/- 6.7507 µg/mL	Gravimetric Unstressed Stressed

8	Acifluorfen methyl ester		200.0	µg/mL	+/- 1.4182	µg/mL	Gravimetric
	CAS # 50594-67-7	(Lot 6282300)			+/- 6.7507	µg/mL	Unstressed
	Purity 99%				+/- 6.7507	µg/mL	Stressed

Solvent: Hexane/Methyl-tert-butyl-ether
CAS # 110-54-3/1634-04-4
Purity 99%

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

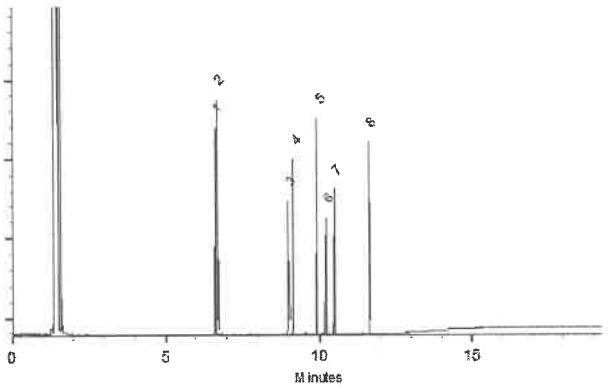
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Michael J Maye

Date Mixed: 14-Nov-2019 **Balance:** 1128353505

Justine Alberson - Operations Tech-ARM QC

Date Passed: 18-Nov-2019

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

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 32055 **Lot No.:** A0199693

Description : Herbicide Mix #1/ME (Methyl Ester)

Herbicide Mix #1/ME (Methyl Ester) 200 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : July 31, 2030 **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	Dicamba methyl ester	6597-78-0	1813500	99%	202.0 µg/mL	+/- 3.4272
2	Dichlorprop methyl ester	57153-17-0	8578700	98%	201.9 µg/mL	+/- 3.4251
3	2,4-D methyl ester	1928-38-7	10048000	99%	202.0 µg/mL	+/- 3.4272
4	2,4,5-TP (silvex) methyl ester	4841-20-7	504400	99%	202.0 µg/mL	+/- 3.4272
5	2,4,5-T methyl ester	1928-37-6	6875800	98%	201.9 µg/mL	+/- 3.4251
6	Dinoseb methyl ether	6099-79-2	9239100	99%	202.0 µg/mL	+/- 3.4272
7	2,4-DB methyl ester	18625-12-2	6847200	99%	202.0 µg/mL	+/- 3.4272

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

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

P12660
↓
P12664

AJ
07/14/23

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.)

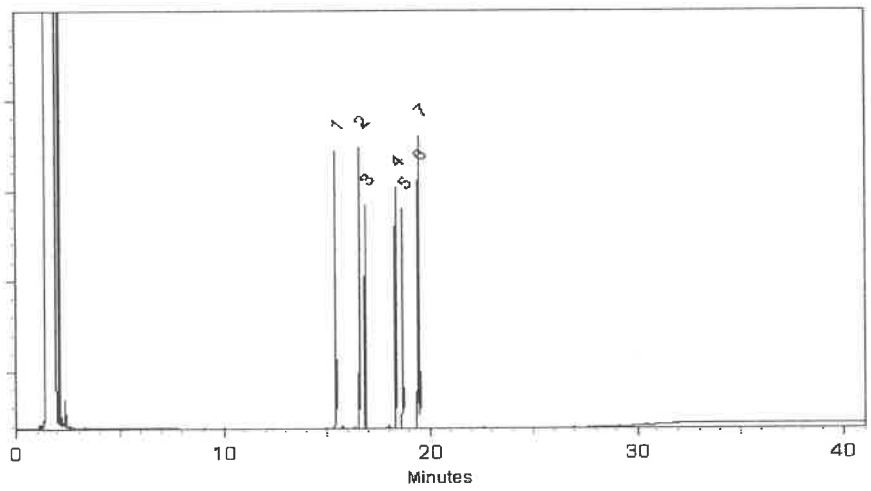
Inj. Temp:
250°C

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.

Nick Yaw - Operations Tech I

Date Mixed: 07-Jul-2023 **Balance Serial #** 1128360905

Christie Mills - Operations Lead Tech - ARM QC

Date Passed: 11-Jul-2023

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

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

P 12685 ↓ P 12689 (S)

7/24/23

Catalog No. : 32059 **Lot No.:** A0199844

Description : Herbicide Mix #3/ME (Methyl Ester)

Herbicide Mix #3/ME (Methyl Ester) 20,000 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : July 31, 2030 **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	MCPP (Mecoprop) methyl ester	23844-56-6	14546400	99%	20,035.0 µg/mL	+/- 360.1907
2	MCPA methyl ester	2436-73-9	SL201209	99%	20,055.0 µg/mL	+/- 360.5503

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

Solvent: Hexane
CAS # 110-54-3
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:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

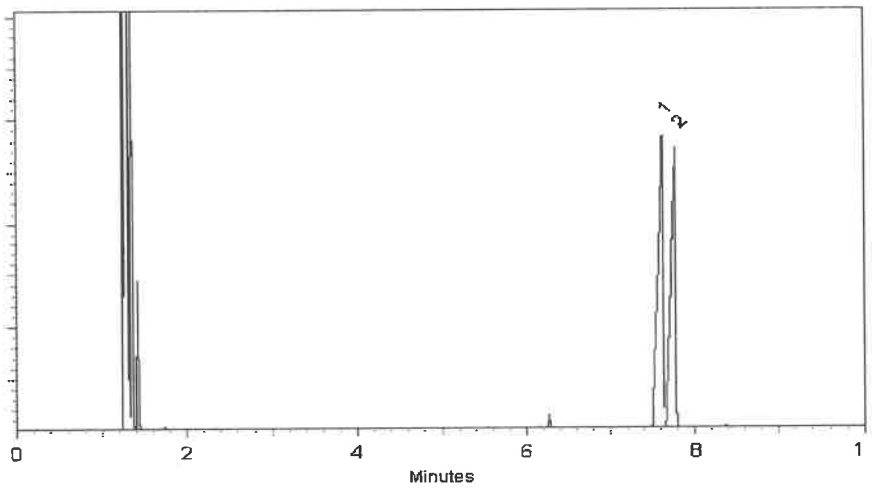
Inj. Temp:
250°C

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.

Morgan Craighead - Mix Technician

Date Mixed: 12-Jul-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 19-Jul-2023

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

Agilent

Trusted Answers

ISO 17034

Reference Material Certificate

Product Information Sheet

Product Name: Chlorinated Herbicides Standard

Product Number: HBM-8151A-1

Storage Conditions: Store at Room Temperature (15° to 30°C).

Lot Number: 0006810955

Lot Issue Date: 20-Aug-2024

Expiration Date: 30-Sep-2026

Component Name	Concentration		Uncertainty	CAS#	Analyte Lot
acifluorfen	100.2	±	0.5 µg/mL	050594-66-6	NT02057
bentazon	100.4	±	0.5 µg/mL	025057-89-0	RM21359
chloramben	100.3	±	0.5 µg/mL	000133-90-4	RM02698
2,4-D	100.4	±	0.5 µg/mL	000094-75-7	RM17172
dalapon	100.4	±	0.5 µg/mL	000075-99-0	RM19677
2,4-DB	100.1	±	0.5 µg/mL	000094-82-6	RM02866
tetrachloroterephthalic acid	100.4	±	0.5 µg/mL	002136-79-0	RM15140
dicamba	100.3	±	0.5 µg/mL	001918-00-9	RM22113
3,5-dichlorobenzoic acid	100.4	±	0.5 µg/mL	000051-36-5	RM02768
dichlorprop	100.2	±	0.5 µg/mL	000120-36-5	RM21688
dinoseb	100.3	±	0.5 µg/mL	000088-85-7	RM22275
MCPA	10019	±	50 µg/mL	000094-74-6	RM12220
MCPP (mecoprop)	10011	±	50 µg/mL	000093-65-2	RM09273
4-nitrophenol	100.4	±	0.5 µg/mL	000100-02-7	RM02391
pentachlorophenol	100.2	±	0.5 µg/mL	000087-86-5	RM02474
picloram	100.4	±	0.5 µg/mL	001918-02-1	RM20442
silvex	100.5	±	0.5 µg/mL	000093-72-1	RM22116
2,4,5-T	100.3	±	0.5 µg/mL	000093-76-5	RM19314

Matrix: methanol (methyl alcohol)

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
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Homogeneity:
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P13541 ↓ P13561 (20)

CSD-QA-015.2

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Cert No. AT-1937

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9/25/2024

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Trusted Answers

ISO 17034

Reference Material Certificate

Product Information Sheet

Product Name: Chlorinated Herbicides Standard

Product Number: HBM-8151A-1

Storage Conditions: Store at Room Temperature (15° to 30°C).

Lot Number: 0006810955

Lot Issue Date: 20-Aug-2024

Expiration Date: 30-Sep-2026

Component Name	Concentration		Uncertainty	CAS#	Analyte Lot
acifluorfen	100.2	±	0.5 µg/mL	050594-66-6	NT02057
bentazon	100.4	±	0.5 µg/mL	025057-89-0	RM21359
chloramben	100.3	±	0.5 µg/mL	000133-90-4	RM02698
2,4-D	100.4	±	0.5 µg/mL	000094-75-7	RM17172
dalapon	100.4	±	0.5 µg/mL	000075-99-0	RM19677
2,4-DB	100.1	±	0.5 µg/mL	000094-82-6	RM02866
tetrachloroterephthalic acid	100.4	±	0.5 µg/mL	002136-79-0	RM15140
dicamba	100.3	±	0.5 µg/mL	001918-00-9	RM22113
3,5-dichlorobenzoic acid	100.4	±	0.5 µg/mL	000051-36-5	RM02768
dichlorprop	100.2	±	0.5 µg/mL	000120-36-5	RM21688
dinoseb	100.3	±	0.5 µg/mL	000088-85-7	RM22275
MCPA	10019	±	50 µg/mL	000094-74-6	RM12220
MCPP (mecoprop)	10011	±	50 µg/mL	000093-65-2	RM09273
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pentachlorophenol	100.2	±	0.5 µg/mL	000087-86-5	RM02474
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ISO 17034

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Product Information Sheet

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dalapon	100.4	±	0.5 µg/mL	000075-99-0	RM19677
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ISO 17034

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Product Information Sheet

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Matrix: methanol (methyl alcohol)

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P13541 ↓ P13561 (20)

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9/25/2024

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chromatographic plus

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Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 32050 **Lot No.:** A0221255

Description : 2,4-Dichlorophenylacetic Acid Methyl Ester Standard

515 Surrogate (ester) 2, 4-dichlorophenyl Acetic Acid Methyl Ester
200µg/mL, Hexane, 1mL/ampul

P14064 ↓ P14078 AC 6/23/25

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

Expiration Date : October 31, 2031 **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	2,4-Dichlorophenyl acetic acid methyl ester	55954-23-9	13054200	99%	202.0 µg/mL	+/- 3.4272

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

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

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

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Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

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

Catalog No. : 32050 **Lot No.:** A0221255

Description : 2,4-Dichlorophenylacetic Acid Methyl Ester Standard

515 Surrogate (ester) 2, 4-dichlorophenyl Acetic Acid Methyl Ester
200µg/mL, Hexane, 1mL/ampul

P14064 ↓ P14078 AC 6/23/25

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

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

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CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4-Dichlorophenyl acetic acid methyl ester	55954-23-9	13054200	99%	202.0 µg/mL	+/- 3.4272

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

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

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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.

Received by SG on 8/16/19
P8828
P8826

Catalog No. : 32254 **Lot No.:** A0148063

Description : Dalapon methyl ester Standard

Dalapon methyl ester 1000µg/mL, Methanol, 1mL/ampul

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

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

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Dalapon methyl ester	999.6 µg/mL	+/- 10.0697	µg/mL	Gravimetric
	CAS # 17640-02-7 (Lot 1764600)		+/- 34.4896	µg/mL	Unstressed
	Purity 98%		+/- 34.4896	µg/mL	Stressed

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

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

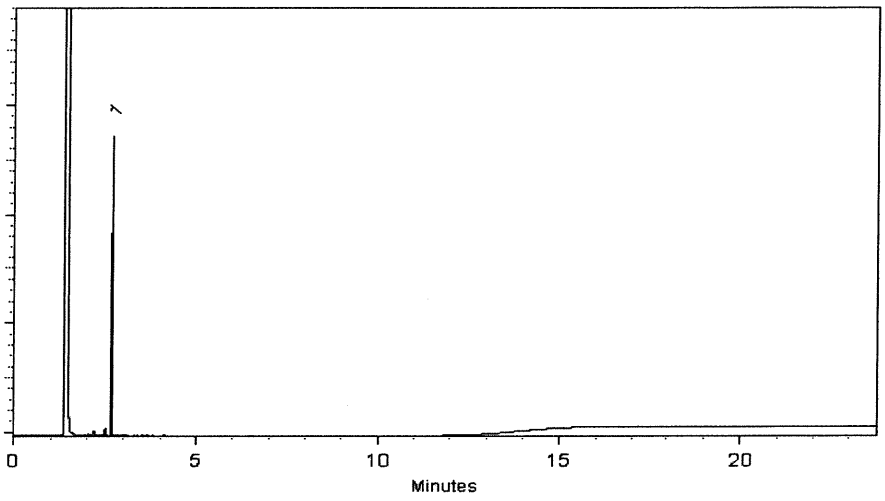
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Russ Bookhamer - Operations Technician I

Date Mixed: 11-Apr-2019 **Balance:** 1127510105

Fang-Yun Lo - QC Analyst

Date Passed: 15-Apr-2019

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

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

avantor™ | J.T.Baker

W3240
JP
Opened 07/15/2025

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

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