

### Prep Standard - Chemical Standard Summary

**Order ID :** P2403

**Test :** Herbicide

**Prepbatch ID :** PB160776,

**Sequence ID/Qc Batch ID:** PS050824,

**Standard ID :**

EP2436,EP2480,PP23008,PP23009,PP23010,PP23011,PP23012,PP23013,PP23014,PP23015,PP23016,PP23210,PP23352,

**Chemical ID :**

E2865,E3370,E3551,E3672,E3714,E3732,E3734,E3736,M5037,M5862,P 11178,P12628,P12706,P12773,P12774,P13166,P13167,P13168,P13169,P8805,P8827,P8900,P9003,



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
601	Acidified Sodium Sulphate 2	<a href="#">EP2436</a>	01/16/2024	07/03/2024	Rajesh Parikh	Extraction_SC ALE_2	None	RUPESHKUMAR SHAH 01/16/2024
<p>(EX-SC-2)</p> <p><b><u>FROM</u></b> 100.00000ml of E3370 + 150.00000ml of M5037 + 3000.00000ml of E3551 = Final Quantity: 3000.000 gram</p>								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2017	1:1 ACETONE/METHYLENE CHLORIDE	<a href="#">EP2480</a>	05/02/2024	10/30/2024	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 05/02/2024
<b><u>FROM</u></b> 8000.00000ml of E3734 + 8000.00000ml of E3736 = Final Quantity: 16000.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1321	2/200 PPM Herb Mega Mix	<a href="#">PP23008</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 01/10/2024
<u>FROM</u>	0.20000ml of P8827 + 1.00000ml of P12628 + 1.00000ml of P8805 + 1.00000ml of P8900 + 1.00000ml of P9003 + 95.80000ml of E3672 = Final Quantity: 100.000 ml							

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1452	1500 PPB HERB MIX STD	<a href="#">PP23009</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 01/10/2024
<u>FROM</u>	0.25000ml of E3672 + 0.75000ml of PP23008 = Final Quantity: 1.000 ml							

## Pest/Pcb STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1453	1000 PPB Herb MIX STD	<a href="#">PP23010</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani
								01/10/2024

**FROM** 0.50000ml of E3672 + 0.50000ml of PP23008 = Final Quantity: 1.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1454	750 PPB Herb MIX STD	<a href="#">PP23011</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani
								01/10/2024

**FROM** 0.25000ml of E3672 + 0.75000ml of PP23010 = Final Quantity: 1.000 ml

## Pest/Pcb STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1455	500 PPB Herb MIX STD	<a href="#">PP23012</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani
								01/10/2024

**FROM** 0.50000ml of E3672 + 0.50000ml of PP23010 = Final Quantity: 1.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1456	200 PPB Herb MIX STD	<a href="#">PP23013</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani
								01/10/2024

**FROM** 0.80000ml of E3672 + 0.20000ml of PP23010 = Final Quantity: 1.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1851	2/200 PPM Herb Mega Mix 2nd Source	<a href="#">PP23014</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 01/10/2024
<b><u>FROM</u></b> 0.50000ml of P11178 + 1.00000ml of P12706 + 48.50000ml of E3672 = Final Quantity: 50.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1854	1000 PPB HERB MIX ICV STD	<a href="#">PP23015</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 01/10/2024
<u>FROM</u>	0.50000ml of E3672 + 0.50000ml of PP23014 = Final Quantity: 1.000 ml							

## Pest/Pcb STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1691	750 PPB ICV HERB STD	<a href="#">PP23016</a>	01/09/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani
								01/10/2024

**FROM** 0.25000ml of E3672 + 0.75000ml of PP23015 = Final Quantity: 1.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1848	5000/500000 PPB Herbicide Spike (Free Acid)	<a href="#">PP23210</a>	04/11/2024	10/04/2024	Abdul Mirza	None	None	Ankita Jodhani
								04/17/2024

**FROM** 1.25000ml of P12773 + 1.25000ml of P12774 + 47.50000ml of E3714 = Final Quantity: 50.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
60	5000 PPB Herbicide Surg Spike (Free Acid)	<a href="#">PP23352</a>	04/30/2024	10/22/2024	Abdul Mirza	None	None	Ankita Jodhani 05/06/2024
<b><u>FROM</u></b> 1.25000ml of P13166 + 1.25000ml of P13167 + 1.25000ml of P13168 + 1.25000ml of P13169 + 195.00000ml of E3732 = Final Quantity: 200.000 ml								



## CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9244-03 / Ether, Anhydrous, Purified (cs/4x4L)	0000288039	07/17/2024	08/01/2022 / Rajesh	07/13/2022 / Rajesh	E3370

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	23G1262009	06/23/2024	12/23/2023 / Rajesh	12/21/2023 / Rajesh	E3672

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)	23H1462005	10/30/2024	04/04/2024 / Rajesh	03/20/2024 / Rajesh	E3714

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)	23H1462005	10/22/2024	04/22/2024 / Rajesh	04/12/2024 / Rajesh	E3732

## 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)	23H1462005	10/30/2024	04/30/2024 / Rajesh	04/19/2024 / Rajesh	E3734

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)	24C0162011	11/01/2024	05/01/2024 / Rajesh	04/26/2024 / Rajesh	E3736

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)	0000250349	12/15/2024	01/06/2022 / mohan	09/18/2021 / mohan	M5037

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22E1662006	10/22/2024	04/22/2024 / Al-Terek	04/18/2024 / Al-Terek	M5862

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	07/09/2024	01/09/2024 / Abdul	11/01/2021 / Abdul	P11178

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	A192429	07/09/2024	01/09/2024 / Abdul	07/03/2023 / Abdul	P12628

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151M / Chlorinated Herbicide Mixtures, Methyl Esters	0006752480	07/09/2024	01/09/2024 / Abdul	08/09/2023 / Abdul	P12706

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	HBM-8151M / Chlorinated Herbicide Mixtures, Methyl Esters	0006752480	07/09/2024	01/09/2024 / Abdul	08/09/2023 / Abdul	P12706

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	0006750243	08/31/2025	04/11/2024 / Abdul	09/11/2023 / Abdul	P12773

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	0006750243	08/31/2025	04/11/2024 / Abdul	09/11/2023 / Abdul	P12773

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	0006750243	08/31/2025	04/11/2024 / Abdul	09/11/2023 / Abdul	P12774

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	0006750243	08/31/2025	04/11/2024 / Abdul	09/11/2023 / Abdul	P12774

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32049 / Herbicide, 8000 series, 515 Surrogate [free acid] 2,4-dichlorophenyl acetic acid, 1mL, 200ug/mL,	A0201161	10/30/2024	04/30/2024 / Abdul	01/12/2024 / Abdul	P13166

MeOH

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32049 / Herbicide, 8000 series, 515 Surrogate [free acid] 2,4-dichlorophenyl acetic acid, 1mL, 200ug/mL,	A0201161	10/30/2024	04/30/2024 / Abdul	01/12/2024 / Abdul	P13167

MeOH

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32049 / Herbicide, 8000 series, 515 Surrogate [free acid] 2,4-dichlorophenyl acetic acid, 1mL, 200ug/mL,	A0201161	10/30/2024	04/30/2024 / Abdul	01/12/2024 / Abdul	P13168

MeOH

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32049 / Herbicide, 8000 series, 515 Surrogate [free acid] 2,4-dichlorophenyl acetic acid, 1mL, 200ug/mL,	A0201161	10/30/2024	04/30/2024 / Abdul	01/12/2024 / Abdul	P13169

MeOH

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	A0131940	07/09/2024	01/09/2024 / Abdul	08/16/2019 / Stephen	P8805

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	07/09/2024	01/09/2024 / Abdul	08/16/2019 / Stephen	P8827

## CHEMICAL RECEIPT LOG BOOK

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	A0152499	07/09/2024	01/09/2024 / Abdul	08/16/2019 / Stephen	P8900

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	A0152705	07/09/2024	01/09/2024 / Abdul	10/11/2019 / Stephen	P9003

Sand  
Purified  
Washed and Ignited



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

## Certificate of Analysis

Test	Specification	Result
Substances Soluble in HCl	$\leq 0.16\%$	0.01

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

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

E 2865

  
Jamie Ethier  
Vice President Global Quality

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

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

Ether, Anhydrous  
BAKER ANALYZED® A.C.S. Reagent  
Contains BHT as a Preservative  
Suitable for Fat Extraction



Material No.: 9244-03  
Batch No.: 0000288039  
Manufactured Date: 2021/07/22  
Expiration Date: 2023/07/22  
Revision No: 1

## Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ((C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> O) (by GC, corrected for water)	>= 99.0 %	100.0
Alcohol (C <sub>2</sub> H <sub>5</sub> OH)	Passes Test	PT
Carbonyl Compounds (as HCHO) (by polarography)	<= 0.001 %	< 0.001
Color (APHA)	<= 10	< 5
Peroxide (as H <sub>2</sub> O <sub>2</sub> )	<= 1 ppm	< 1
Preservative (BHT)	>= 7 ppm	9
Residue after Evaporation	<= 0.0010 %	< 0.0010
Titration Acid (μeq/g)	<= 0.2	< 0.2
Water (by KF, coulometric)	<= 0.01 %	0.01

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

Country of Origin: US

Recd. by RP on 7/13/22

E 3370

  
Jamie Ethier  
Vice President Global Quality

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

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700



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## CERTIFICATE OF ANALYSIS

PRODUCT :	SODIUM SULFATE CRYSTALS ANHYDROUS		
QUALITY :	ACS (CODE RMB3375)	FORMULA :	Na <sub>2</sub> SO <sub>4</sub>
SPECIFICATION NUMBER :	6399	RELEASE DATE:	ABR/21/2023
LOT NUMBER :	313201		

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

### COMMENTS

QC: PhC Irma Belmares

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

Recd. by R3 on 7/24/23 E 3551

RC-02-01, Ed. 3



Acetone  
BAKER RESI-ANALYZED® Reagent  
For Organic Residue Analysis



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

## Certificate of Analysis

Test	Specification	Result
Assay ((CH <sub>3</sub> ) <sub>2</sub> CO) (by GC, corrected for water)	≥ 99.4 %	99.7 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titration Acid (μeq/g)	≤ 0.3	0.1
Titration Base (μeq/g)	≤ 0.6	< 0.1
Water (H <sub>2</sub> O)	≤ 0.5 %	0.3 %
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

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

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

Recd. by RP on 03/20/24

E 3714

Ken Koehnlein  
Sr. Manager, Quality Assurance

Acetone  
BAKER RESI-ANALYZED® Reagent  
For Organic Residue Analysis

 **avantor™**



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

## Certificate of Analysis

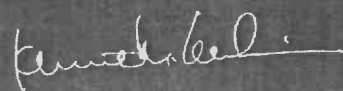
Test	Specification	Result
Assay ((CH <sub>3</sub> ) <sub>2</sub> CO) (by GC, corrected for water)	≥ 99.4 %	99.7 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titration Acid (μeq/g)	≤ 0.3	0.1
Titration Base (μeq/g)	≤ 0.6	< 0.1
Water (H <sub>2</sub> O)	≤ 0.5 %	0.3 %
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

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

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

Recd. by RP on 4/12/24

E 3732



Ken Koehnlein  
Sr. Manager, Quality Assurance

Acetone  
BAKER RESI-ANALYZED® Reagent  
For Organic Residue Analysis



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

## Certificate of Analysis

Test	Specification	Result
Assay ((CH <sub>3</sub> ) <sub>2</sub> CO) (by GC, corrected for water)	≥ 99.4 %	99.7 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titration Acid (μeq/g)	≤ 0.3	0.1
Titration Base (μeq/g)	≤ 0.6	< 0.1
Water (H <sub>2</sub> O)	≤ 0.5 %	0.3 %
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

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

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

Recd. by RP on 4/19/24

E 3734

Ken Koehnlein  
Sr. Manager, Quality Assurance

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



Material No.: 9266-A4  
Batch No.: 24C0162011  
Manufactured Date: 2024-01-04  
Expiration Date: 2025-04-04  
Revision No.: 0

## Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	$\leq 5$	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	$\leq 10$	2
Assay ( $\text{CH}_2\text{Cl}_2$ ) (by GC, exclusive of preservative, corrected for water)	$\geq 99.8\%$	100.0 %
Color (APHA)	$\leq 10$	10
Residue after Evaporation	$\leq 1.0$ ppm	0.2 ppm
Titration Acid ( $\mu\text{eq/g}$ )	$\leq 0.3$	< 0.1
Chloride (Cl)	$\leq 10$ ppm	< 5 ppm
Water (by KF, coulometric)	$\leq 0.02\%$	< 0.01 %

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

Country of Origin: USA  
Packaging Site: Phillipsburg Mfg Ctr & DC  
Manufacturer source batch: MG24A04224

E 3736

Ken Koehnlein  
Sr. Manager, Quality Assurance

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  
Page 1 of 1

Sulfuric Acid

BAKER INSTRA-ANALYZED® Reagent

For Trace Metal Analysis

Low Selenium



Material No.: 9673-33

Batch No.: 0000250349

Manufactured Date: 2019/12/17

Retest Date: 2024/12/15

Revision No: 1

## Certificate of Analysis

Test	Specification	Result
ACS - Assay (H <sub>2</sub> SO <sub>4</sub> )	95.0 - 98.0 %	96.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Substances Reducing Permanganate (as SO <sub>2</sub> )	<= 2 ppm	< 2
Ammonium (NH <sub>4</sub> )	<= 1 ppm	< 1
Chloride (Cl)	<= 0.1 ppm	< 0.1
Nitrate (NO <sub>3</sub> )	<= 0.2 ppm	< 0.1
Phosphate (PO <sub>4</sub> )	<= 0.5 ppm	< 0.1
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.2
Arsenic and Antimony (as As)	<= 4 ppb	< 2
Trace Impurities - Barium (Ba)	<= 10.0 ppb	< 1.0
Trace Impurities - Beryllium (Be)	<= 10.0 ppb	< 1.0
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 10.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 2.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	2.9
Trace Impurities - Chromium (Cr)	<= 6.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 0.5 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 10.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 10.0 ppb	< 10.0
Trace Impurities - Gold (Au)	<= 10.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 500 ppb	< 100

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

Avantor Performance Materials, LLC

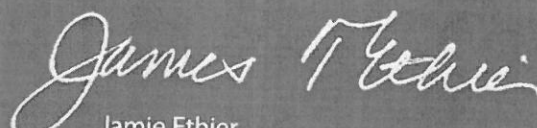
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Material No.: 9673-33  
Batch No.: 0000250349

Test	Specification	Result
Trace Impurities - Iron (Fe)	<= 50.0 ppb	4.1
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 10.0 ppb	< 1.0
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 2.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 10.0 ppb	< 1.0
Trace Impurities - Potassium (K)	<= 500.0 ppb	< 2.0
Trace Impurities - Selenium (Se)	<= 50.0 ppb	22.9
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 500.0 ppb	2.7
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 10.0 ppb	< 5.0
Trace Impurities - Thallium (Tl)	<= 20.0 ppb	< 5.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 10.0 ppb	< 1.0
Trace Impurities - Vanadium (V)	<= 10.0 ppb	< 1.0
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities - Zirconium (Zr)	<= 10.0 ppb	< 1.0

For Laboratory, Research or Manufacturing Use

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

  
Jamie Ethier  
Vice President Global Quality

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

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

**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:**

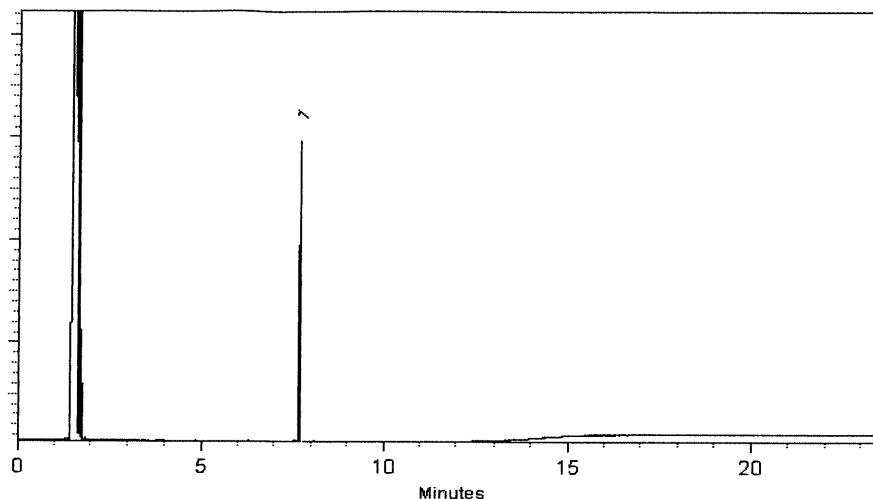
250°C

**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.

  
Katelyn McGinnis - Operations Tech I

**Date Mixed:** 28-May-2021

**Balance:** B345965662

  
Marlene Cowan - Operations Tech I

**Date Passed:** 02-Jun-2021

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

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11/02/21



CERTIFIED REFERENCE MATERIAL

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

www.restek.com

# 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.*

**Catalog No. :** 32050 **Lot No.:** A0172864

**Description :** 2,4-Dichlorophenylacetic Acid Methyl Ester Standard

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

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

**Expiration Date :** February 29, 2028 **Storage:** 10°C or colder

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

## CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	2,4-Dichlorophenyl acetic acid methyl ester	202.0 µg/mL	+/- 1.4323 µg/mL Gravimetric
	CAS # 55954-23-9 (Lot CSC42194-01)		+/- 6.8182 µg/mL Unstressed
	Purity 99%		+/- 6.8182 µg/mL Stressed

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

P11177  
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P11186  
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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



#### 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.:** A0192429

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

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

P12626 / 5  
P12630  
7/5/2023

#### 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	11705400	99%	201.6 µg/mL	+/- 3.4204
2	Dichlorprop methyl ester	57153-17-0	11672100	99%	201.4 µg/mL	+/- 3.4170
3	2,4-D methyl ester	1928-38-7	10048000	99%	201.2 µg/mL	+/- 3.4136
4	2,4,5-TP (silvex) methyl ester	4841-20-7	6364900	99%	201.2 µg/mL	+/- 3.4136
5	2,4,5-T methyl ester	1928-37-6	6875800	98%	200.7 µg/mL	+/- 3.4052
6	Dinoseb methyl ether	6099-79-2	12914300	99%	200.8 µg/mL	+/- 3.4068
7	2,4-DB methyl ester	18625-12-2	12542000	99%	201.0 µg/mL	+/- 3.4102

\* 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:**

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

**Inj. Temp:**

250°C

**Det. Temp:**

330°C

**Det. Type:**

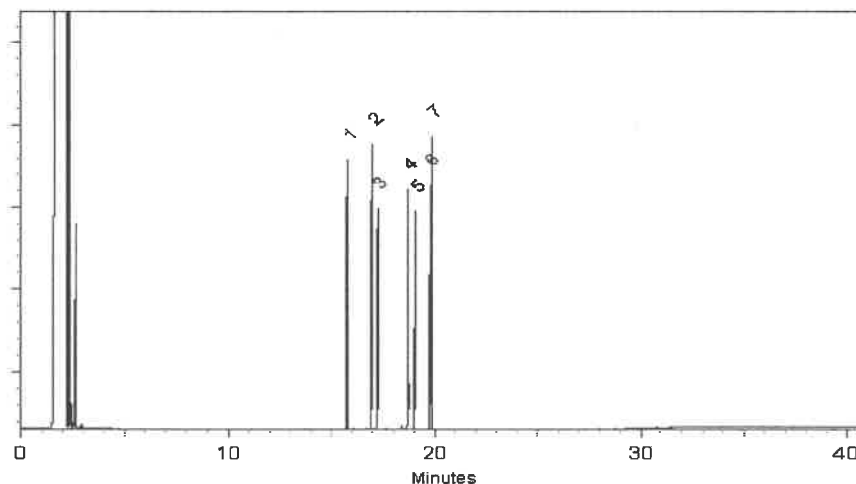
FID

**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.

  
Penelope Riglin - Operations Tech I

Date Mixed: 09-Dec-2022

Balance Serial # 1128360905

  
Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 12-Dec-2022

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

P12706  
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P12715  
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/ 8/15/23

**ISO 17034**

**Reference Material Certificate**  
**Product Information Sheet**

**Product Name:** Chlorinated Methylated Herbicides Standard

**Lot Number:** 0006752480

**Product Number:** HBM-8151M-1

**Lot Issue Date:** 18-Jul-2023

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

**Expiration Date:** 31-Aug-2025

Component Name	Concentration	Uncertainty	CAS#	Analyte Lot
acifluorfen methyl ester	100.3 ±	0.5 µg/mL	050594-67-7	RM03058
bentazon methyl derivative	100.2 ±	0.5 µg/mL	061592-45-8	RM13829
chloramben methyl ester	100.4 ±	0.5 µg/mL	007286-84-2	RM03055
2,4-D methyl ester	100.2 ±	0.5 µg/mL	001928-38-7	RM03040
dalapon methyl ester	100.4 ±	0.5 µg/mL	017640-02-7	RM14219
2,4-DB methyl ester	100.2 ±	0.5 µg/mL	018625-12-2	RM03029
DCPA	100.2 ±	0.5 µg/mL	001861-32-1	RM13426
dicamba methyl ester	100.4 ±	0.5 µg/mL	006597-78-0	RM03039
methyl-3,5-dichlorobenzoate	100.1 ±	0.5 µg/mL	002905-67-1	RM03048
dichlorprop methyl ester	100.4 ±	0.5 µg/mL	057153-17-0	NT02086
dinoseb methyl ether	100.5 ±	0.5 µg/mL	006099-79-2	RM03051
MCPA methyl ester	10031 ±	50 µg/mL	002436-73-9	RM12863
MCPP methyl ester	10031 ±	50 µg/mL	023844-56-6	RM20060
4-nitroanisole	100.3 ±	0.5 µg/mL	000100-17-4	RM02806
pentachloroanisole	100.4 ±	0.5 µg/mL	001825-21-4	RM02457
picloram methyl ester	100.2 ±	0.5 µg/mL	014143-55-6	RM03044
silvex methyl ester	100.2 ±	0.5 µg/mL	004841-20-7	RM03799
2,4,5-T methyl ester	100.4 ±	0.5 µg/mL	001928-37-6	RM03033

**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:**

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

**Homogeneity:**

This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

**Instructions for Use:**

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

**Safety:**

Refer to the Safety Data Sheet on [www.agilent.com](http://www.agilent.com) for information regarding this analytical reference material.

**Intended Use:**

This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

**Expiration of Certification:**

The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

**Maintenance of Certification:**

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

  
Monica Bourgeois  
QMS Representative

P12706 / (10)  
↓  
P12715  
✓ RAUF  
8.15.23



ISO 17034  
Cert No. AR-1936

RM was produced in accordance with the TUV/SUD registered ISO  
9001:2015 Quality Management System. Cert# 951215321

Page: 2 of 2

[www.agilent.com/quality/](http://www.agilent.com/quality/)  
CSD-QA-015.2

ISO 17025  
Cert No. AT-1937

P12766  
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P12785  
✓  
9.11.23

ISO 17034

**Reference Material Certificate**  
**Product Information Sheet**

**Product Name:** Chlorinated Herbicides Standard

**Lot Number:** 0006750243

**Product Number:** HBM-8151A-1

**Lot Issue Date:** 07-Jul-2023

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

**Expiration Date:** 31-Aug-2025

Component Name	Concentration	Uncertainty	CAS#	Analyte Lot
acifluorfen	100.1	± 0.5 µg/mL	050594-66-6	NT02057
bentazon	100.1	± 0.5 µg/mL	025057-89-0	RM20289
chloramben	100.4	± 0.5 µg/mL	000133-90-4	RM02698
2,4-D	100.1	± 0.5 µg/mL	000094-75-7	RM17172
dalapon	100.4	± 0.5 µg/mL	000075-99-0	RM21030
2,4-DB	100.1	± 0.5 µg/mL	000094-82-6	RM02866
tetrachloroterephthalic acid	100.3	± 0.5 µg/mL	002136-79-0	RM13887
dicamba	100.2	± 0.5 µg/mL	001918-00-9	RM20089
3,5-dichlorobenzoic acid	100.0	± 0.5 µg/mL	000051-36-5	RM02768
dichlorprop	100.0	± 0.5 µg/mL	000120-36-5	RM20896
dinoseb	100.0	± 0.5 µg/mL	000088-85-7	RM20667
MCPA	100.4	± 50 µg/mL	000094-74-6	RM12220
MCPP (mecoprop)	100.37	± 50 µg/mL	000093-65-2	RM09273
4-nitrophenol	100.1	± 0.5 µg/mL	000100-02-7	RM03752
pentachlorophenol	100.1	± 0.5 µg/mL	000087-86-5	RM02474
picloram	100.4	± 0.5 µg/mL	001918-02-1	RM20442
silvex	100.1	± 0.5 µg/mL	000093-72-1	RM20208
2,4,5-T	100.4	± 0.5 µg/mL	000093-76-5	NT01808

**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:**

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

**Homogeneity:**

This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

**Instructions for Use:**

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

**Safety:**

Refer to the Safety Data Sheet on [www.agilent.com](http://www.agilent.com) for information regarding this analytical reference material.

**Intended Use:**

This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

**Expiration of Certification:**

The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

**Maintenance of Certification:**

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

**Sample lot approver:**

  
Monica Bourgeois  
QMS Representative

P12766 / (20)  
↓  
P12785 /  
✓  
9/11/2023



ISO 17034  
Cert No. AR-1936

RM was produced in accordance with the TUV/SUD registered ISO 9001:2015 Quality Management System. Cert# 951215321

Page: 2 of 2

[www.agilent.com/quality/](http://www.agilent.com/quality/)  
CSD-QA-015.2

ISO 17025  
Cert No. AT-1937

P12766  
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P12785  
✓  
9.11.23  
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ISO 17034

**Reference Material Certificate**  
**Product Information Sheet**

**Product Name:** Chlorinated Herbicides Standard

**Lot Number:** 0006750243

**Product Number:** HBM-8151A-1

**Lot Issue Date:** 07-Jul-2023

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

**Expiration Date:** 31-Aug-2025

Component Name	Concentration	Uncertainty	CAS#	Analyte Lot
acifluorfen	100.1	± 0.5 µg/mL	050594-66-6	NT02057
bentazon	100.1	± 0.5 µg/mL	025057-89-0	RM20289
chloramben	100.4	± 0.5 µg/mL	000133-90-4	RM02698
2,4-D	100.1	± 0.5 µg/mL	000094-75-7	RM17172
dalapon	100.4	± 0.5 µg/mL	000075-99-0	RM21030
2,4-DB	100.1	± 0.5 µg/mL	000094-82-6	RM02866
tetrachloroterephthalic acid	100.3	± 0.5 µg/mL	002136-79-0	RM13887
dicamba	100.2	± 0.5 µg/mL	001918-00-9	RM20089
3,5-dichlorobenzoic acid	100.0	± 0.5 µg/mL	000051-36-5	RM02768
dichlorprop	100.0	± 0.5 µg/mL	000120-36-5	RM20896
dinoseb	100.0	± 0.5 µg/mL	000088-85-7	RM20667
MCPA	10004	± 50 µg/mL	000094-74-6	RM12220
MCPP (mecoprop)	10037	± 50 µg/mL	000093-65-2	RM09273
4-nitrophenol	100.1	± 0.5 µg/mL	000100-02-7	RM03752
pentachlorophenol	100.1	± 0.5 µg/mL	000087-86-5	RM02474
picloram	100.4	± 0.5 µg/mL	001918-02-1	RM20442
silvex	100.1	± 0.5 µg/mL	000093-72-1	RM20208
2,4,5-T	100.4	± 0.5 µg/mL	000093-76-5	NT01808

**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:**

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

**Homogeneity:**

This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

**Instructions for Use:**

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

**Safety:**

Refer to the Safety Data Sheet on [www.agilent.com](http://www.agilent.com) for information regarding this analytical reference material.

**Intended Use:**

This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

**Expiration of Certification:**


The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

**Maintenance of Certification:**

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

**Sample lot approver:**

  
Monica Bourgeois  
QMS Representative

P12766 / (20)  
↓  
P12785 / 1  
  
9/11/2023



ISO 17034  
Cert No. AR-1936

RM was produced in accordance with the TUV/SUD registered ISO 9001:2015 Quality Management System. Cert# 951215321

Page: 2 of 2

[www.agilent.com/quality/](http://www.agilent.com/quality/)  
CSD-QA-015.2

ISO 17025  
Cert No. AT-1937





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



#### 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. :** 32049 **Lot No.:** A0201161  
**Description :** 2,4-Dichlorophenylacetic Acid Standard  
2, 4-Dichlorophenyl Acetic Acid 200µg/mL, Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** May 31, 2026 **Storage:** 10°C or colder  
**Handling:** This product is photosensitive. **Ship:** Ambient

P13161  
↓  
P13180  
/ 1  
01/15/2023

#### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4-dichlorophenylacetic acid	19719-28-9	STBK3827	99%	202.0 µg/mL	+/- 2.7426

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

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

#### Specific Reference Material Notes:

Failure to derivatize this standard will lead to incorrect quantitative results.



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

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## CERTIFIED REFERENCE MATERIAL

### Certificate of Analysis chromatographic plus



#### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

**Catalog No. :** 32049 **Lot No.:** A0201161  
**Description :** 2,4-Dichlorophenylacetic Acid Standard  
2, 4-Dichlorophenyl Acetic Acid 200µg/mL, Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** May 31, 2026 **Storage:** 10°C or colder  
**Handling:** This product is photosensitive. **Ship:** Ambient

P13161  
↓  
P13180  
/ *[Signature]*  
01/15/2023

#### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4-dichlorophenylacetic acid	19719-28-9	STBK3827	99%	202.0 µg/mL	+/- 2.7426

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

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

#### Specific Reference Material Notes:

Failure to derivatize this standard will lead to incorrect quantitative results.



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chromatographic plus



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**Catalog No. :** 32049 **Lot No.:** A0201161  
**Description :** 2,4-Dichlorophenylacetic Acid Standard  
2, 4-Dichlorophenyl Acetic Acid 200µg/mL, Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** May 31, 2026 **Storage:** 10°C or colder  
**Handling:** This product is photosensitive. **Ship:** Ambient

P13161  
↓  
P13180  
/ *[Signature]*  
01/15/2023

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4-dichlorophenylacetic acid	19719-28-9	STBK3827	99%	202.0 µg/mL	+/- 2.7426

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

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

### Specific Reference Material Notes:

Failure to derivatize this standard will lead to incorrect quantitative results.



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**Catalog No. :** 32049 **Lot No.:** A0201161  
**Description :** 2,4-Dichlorophenylacetic Acid Standard  
2, 4-Dichlorophenyl Acetic Acid 200µg/mL, Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** May 31, 2026 **Storage:** 10°C or colder  
**Handling:** This product is photosensitive. **Ship:** Ambient

P13161  
↓  
P13180  
/ 20  
✓  
01/15/2023

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4-dichlorophenylacetic acid	19719-28-9	STBK3827	99%	202.0 µg/mL	+/- 2.7426

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

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

### Specific Reference Material Notes:

Failure to derivatize this standard will lead to incorrect quantitative results.



# CERTIFIED REFERENCE MATERIAL

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## Certificate of Analysis



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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Received by  
SG on 8/16/19  
P8808  
P8806

**Catalog No. :** 32062 **Lot No.:** A0131940

**Description :** Herbicide Mix #4/ME (Methyl Ester)  
Standard #4 (methyl ester) 200µg/mL, Hexane/MTBE(90:10), 1mL/ampul

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

**Expiration Date :** October 31, 2024 **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%	202.0 µg/mL	+/-	1.4323	µg/mL	Gravimetric
			+/-	6.8182	µg/mL	Unstressed
			+/-	6.8182	µg/mL	Stressed
2	4-Nitroanisole CAS # 100-17-4 (Lot 24765/7) Purity 99%	200.0 µg/mL	+/-	1.4182	µg/mL	Gravimetric
			+/-	6.7507	µg/mL	Unstressed
			+/-	6.7507	µg/mL	Stressed
3	Pentachloroanisole CAS # 1825-21-4 (Lot 6390100) Purity 99%	201.0 µg/mL	+/-	1.4253	µg/mL	Gravimetric
			+/-	6.7844	µg/mL	Unstressed
			+/-	6.7844	µg/mL	Stressed
4	Chloramben methyl ester CAS # 7286-84-2 (Lot 6487100) Purity 98%	200.9 µg/mL	+/-	1.4245	µg/mL	Gravimetric
			+/-	6.7810	µg/mL	Unstressed
			+/-	6.7810	µg/mL	Stressed
5	Bentazon methyl ester CAS # 61592-45-8 (Lot 817100) Purity 99%	202.0 µg/mL	+/-	1.4323	µg/mL	Gravimetric
			+/-	6.8182	µg/mL	Unstressed
			+/-	6.8182	µg/mL	Stressed
6	Picloram methyl ester CAS # 14143-55-6 (Lot 459-31B) Purity 98%	200.9 µg/mL	+/-	1.4245	µg/mL	Gravimetric
			+/-	6.7810	µg/mL	Unstressed
			+/-	6.7810	µg/mL	Stressed
7	DCPA methyl ester (Chlorthal-dimethyl) CAS # 1861-32-1 (Lot 84-92B) Purity 99%	201.0 µg/mL	+/-	1.4253	µg/mL	Gravimetric
			+/-	6.7844	µg/mL	Unstressed
			+/-	6.7844	µg/mL	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)

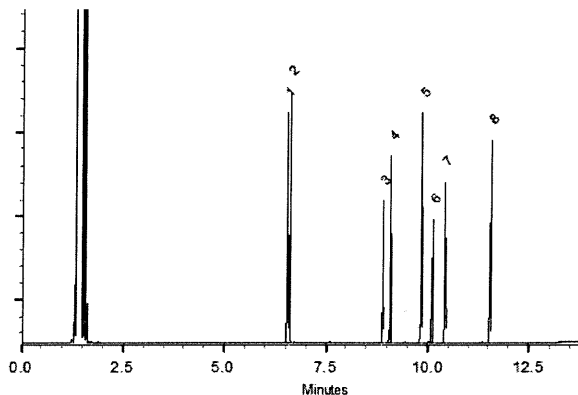
**Carrier Gas:**  
 hydrogen-constant pressure 10 psi.

**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.

*Cheryl Graham*  
 Cheryl Graham - Mix Technician

**Date Mixed:** 29-Oct-2017 **Balance:** B442140311

*Justine Albertson*  
 Justine Albertson - Operations Tech-ARM QC

**Date Passed:** 30-Oct-2017

Manufactured under Restek's ISO 9001:2008  
 Registered Quality System  
 Certificate #FM 80397



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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. :** 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.

Received by  
SG on 8/16/19  
P8828  
P8826

### CERTIFIED VALUES

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

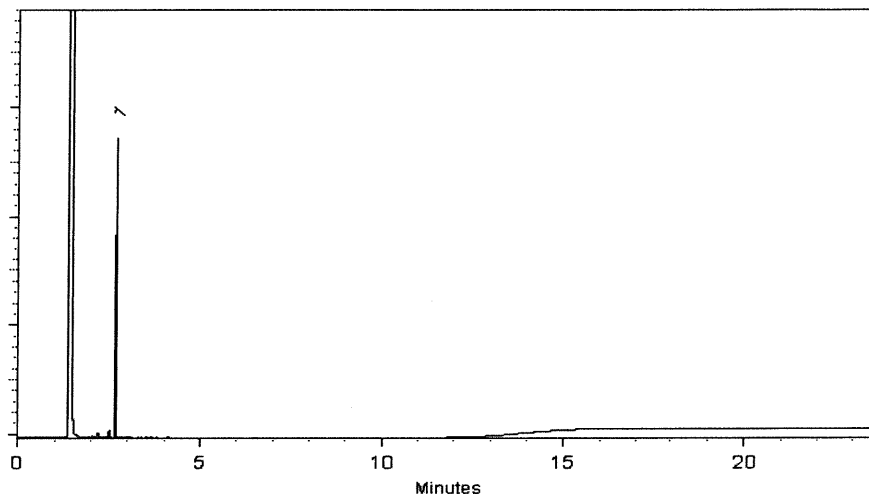
250°C

**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

  
Feng-Yin Lo - QC Analyst

Date Passed: 15-Apr-2019

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Registered Quality System  
Certificate #FM 80397





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## Certificate of Analysis



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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Received by  
SG on 9/10/19  
P8892  
P8896

**Catalog No. :** 32059 **Lot No.:** A0152499

**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 :** September 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	MCPP (Mecoprop) methyl ester		20,004.0    μg/mL	+/-	185.1208	μg/mL	Gravimetric				
	CAS #	23844-56-6                      (Lot 8685200)						+/-	685.5986	μg/mL	Unstressed
	Purity	99%						+/-	685.5986	μg/mL	Stressed
2	MCPA methyl ester		20,012.0    μg/mL	+/-	185.1948	μg/mL	Gravimetric				
	CAS #	2436-73-9                      (Lot 7964600)						+/-	685.8728	μg/mL	Unstressed
	Purity	99%						+/-	685.8728	μg/mL	Stressed
Solvent:	Hexane										
	CAS #	110-54-3									
	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:**

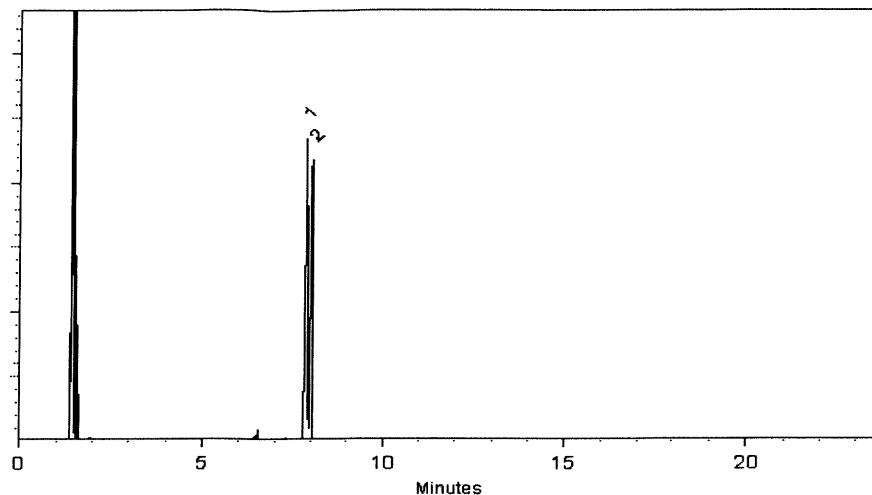
250°C

**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: 03-Sep-2019

Balance: 1128360905

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 05-Sep-2019

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



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## 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.*

Catalog No. : 32050 Lot No.: A0152705  
Description : 2,4-Dichlorophenylacetic Acid Methyl Ester Standard  
515 Surrogate (ester) 2, 4-dichlorophenyl Acetic Acid Methyl Ester  
200µg/mL, Hexane, 1mL/ampul  
Container Size : 2 mL Pkg Amt: > 1 mL  
Expiration Date : June 30, 2026 Storage: 10°C or colder  
Handling: This product is photosensitive.

Received by  
SG on 10/11/19  
P8999  
-  
P9008

### CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	2,4-Dichlorophenyl acetic acid methyl ester	200.0 µg/mL	+/- 1.4182 µg/mL Gravimetric
	CAS # 55954-23-9 (Lot CSC42194-01)		+/- 6.7507 µg/mL Unstressed
	Purity 99%		+/- 6.7507 µg/mL Stressed

Solvent: Hexane  
CAS # 110-54-3  
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:**

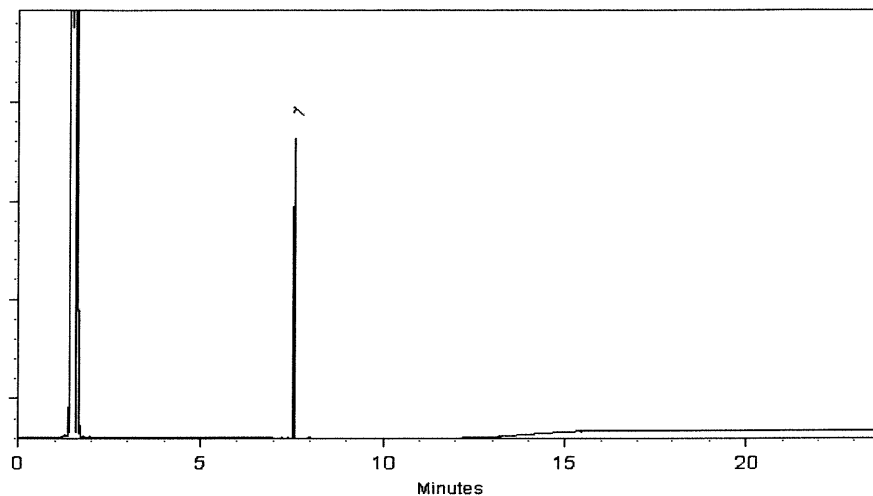
250°C

**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.

*Cydnei L. Crust*  
Cydnei L. Crust - Mix Technician

**Date Mixed:** 09-Sep-2019

**Balance:** B707717271

*Fang-Yun Lo*  
Fang-Yun Lo - GC Analyst

**Date Passed:** 11-Sep-2019

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