

#### Prep Standard - Chemical Standard Summary

Order ID : Q1226

Test : VOC-TRACE-SFAM

Prepbatch ID :

Sequence ID/Qc Batch ID: VU020525,VU020625,VU020725,VU020425

#### Standard ID :

VP131767,VP132476,VP132692,VP132711,VP132819,VP132870,VP132871,VP132872,VP132873,VP132874,VP132875,VP132877,VP132880,VP132894,VP132895,VP132896,VP132897,VP132898,VP132902,VP132903,VP132904,VP132927,VP132928,VP132928,VP132929,

#### **Chemical ID :**

V12993,V13178,V13238,V13391,V13440,V13587,V13604,V13809,V13845,V13858,V13917,V14081,V14154,V14224,V14308,V14352,V14454,V14554,V14605,V14607,V14610,V14611,V14624,V14627,V14726,V14753,W3112,



Recipe ID 218	NAME BFB, 25PPM	<u>NO.</u> VP131767	<u>Prep Date</u> 11/22/2024	Expiration Date 05/18/2025	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 11/27/2024
<u>FROM</u>	0.50000ml of V13391 + 49.50000ml o	of V14154 =	= Final Quanti	ty: 50.000 ml				
Recipe				Expiration	Prepared			Supervised By

Recipe ID 3421	NAME SOMO2.4 TRACE ICV 25 PPM	<u>NO.</u> VP132476	<u>Prep Date</u> 01/08/2025	Expiration Date 02/22/2025	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 01/17/2025
<u>FROM</u>	0.06250ml of V12993 + 0.06250ml of 0.06250ml of V13809 + 0.06250ml of							



Recipe ID 1896	NAME Trace internal standard 50 ppm	<u>NO.</u> VP132692	Prep Date 01/27/2025	Expiration Date 03/01/2025	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 01/29/2025
<u>FROM</u>	0.20000ml of V14352 + 9.80000ml of	f V14624 =	Final Quantity	/: 10.000 ml				

<u>Recipe</u> <u>ID</u> 1897	NAME Trace surrogate mix 25 ppm	<u>NO.</u> VP132711	Prep Date 01/27/2025	Expiration Date 03/01/2025	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 01/29/2025
FROM	0.50000ml of V14454 + 0.50000ml of 4.50000ml of V14624 = Final Quanti			√14605 + 1.500	000ml of V14607	7 + 1.50000ml c	of V14610 +	



<u>Recipe</u> <u>ID</u> 1721	NAME SOM01.2 TRACE-Calibration Mix,25 PPM	<u>NO.</u> VP132819	Prep Date 01/30/2025	Expiration Date 03/08/2025	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 02/06/2025
FROM	0.12500ml of V13440 + 0.12500ml of 0.12500ml of V14554 + 0.12500ml of							

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By
1722	0.5 PPB ICC SOM01.2 Trace		02/04/2025	02/05/2025	Amit Patel	None	None	Semsettin Yesilyurt
1122		102010	02/04/2020	02/00/2020		None	None	02/06/2025
<u>FROM</u>	39.99000ml of W3112 + 0.00080ml o ml	f VP132711	+ 0.00080ml	of VP132819 +	0.00400ml of \	/P132692 = Fir	nal Quantity: 4	0.000



Т

Recipe ID 1723	NAME 1 PPB ICC SOM01.2 Trace	<u>NO.</u> VP132871	Prep Date 02/04/2025		Prepared By Amit Patel	<u>ScaleID</u> None	PipetteID None	Semsettin Yesilyurt
FROM	39.99000ml of W3112 + 0.00160ml o ml	f VP132711	+ 0.00160ml	of VP132819 +	• 0.00400ml of \	/P132692 = Fir	al Quantity: 4	0.000

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Semsettin Yesilyurt
1724	5 PPB ICC SOM01.2 Trace	<u>VP132872</u>	02/04/2025	02/05/2025	Amit Patel	None	None	
								02/06/2025
FROM	39.98000ml of W3112 + 0.00400ml o ml	f VP132692	2 + 0.00800ml	of VP132711 +	- 0.00800ml of \	/P132819 = Fir	nal Quantity: 40	0.000



Recipe ID 1725	NAME 10 PPB ICC SOM01.2 Trace	<u>NO.</u> VP132873	Prep Date 02/04/2025	Expiration Date 02/05/2025	Prepared By Amit Patel	<u>ScaleID</u> None	PipetteID None	Semsettin Yesilyurt
FROM	39.96000ml of W3112 + 0.00400ml o ml	f VP132692	+ 0.01600ml	of VP132711 +	0.01600ml of \	/P132819 = Fir	al Quantity: 4	0.000

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	PipettelD	Supervised By
1726	20 PPB ICC SOM01.2 Trace	<u>VP132874</u>		02/05/2025	Amit Patel	None	None	Semsettin Yesilyurt
								02/06/2025
FROM	39.93000ml of W3112 + 0.00400ml o	f VP132692	+ 0.03200ml	of VP132711 +	0.03200ml of \	/P132819 = Fin	al Quantity: 40	0.000
	ml							



Recipe ID 3422	NAME 5 PPB ICV SOMO2.4 TRACE	<u>NO.</u> VP132875	Prep Date 02/04/2025	Expiration Date 02/05/2025	Prepared By Amit Patel	<u>ScaleID</u> None	PipetteID None	Semsettin Yesilyurt 02/06/2025
FROM	39.98000ml of W3112 + 0.00400ml o ml	f VP132692	2 + 0.00800ml	of VP132476 +	• 0.00800ml of \	/P132711 = Fir	al Quantity: 4	0.000

RecipeExpirationPreparedIDNAMENO.Prep DateDateBy	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By Semsettin Yesilyurt
1727         5 PPB CCC-CCV SOM01.2 Trace         VP132877         02/04/2025         02/05/2025         Amit Patel	None	None	02/06/2025
FROM         39.98000ml of W3112 + 0.00400ml of VP132692 + 0.00800ml of VP132711 + 0.00800ml of V	Ι VP132819 = Fiι	I nal Quantity: 4	



<u>Recipe</u> <u>ID</u> 1734	NAME BFB TUNE SOM01.2 TRACE	<u>NO.</u> VP132880	Prep Date 02/04/2025	Expiration Date 02/05/2025	<u>Prepared</u> <u>By</u> Amit Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Semsettin Yesilyurt
FROM	39.99990ml of W3112 + 0.00320ml o	f VP131767	= Final Qua	ntity: 40.000 m	I			

<u>Reci</u> <u>ID</u> 172		NAME 5 PPB CCC-CCV SOM01.2 Trace	<u>NO.</u> VP132894	Prep Date 02/05/2025	Expiration Date 02/06/2025	<u>Prepared</u> <u>By</u> Amit Patel	<u>ScaleID</u> None	PipetteID None	Semsettin Yesilyurt 02/06/2025		
FRC	FROM         39.98000ml of W3112 + 0.00400ml of VP132692 + 0.00800ml of VP132711 + 0.00800ml of VP132819 = Final Quantity: 40.000										



Recipe ID 1727	NAME 5 PPB CCC-CCV SOM01.2 Trace	<u>NO.</u> VP132895	Prep Date 02/05/2025	Expiration Date 02/06/2025	Prepared By Amit Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Semsettin Yesilyurt
FROM	39.98000ml of W3112 + 0.00400ml o ml	f VP132692	+ 0.00800ml	of VP132711 +	0.00800ml of \	/P132819 = Fir	aal Quantity: 40	0.000

Recipe ID 1734	NAME BFB TUNE SOM01.2 TRACE	<u>NO.</u> VP132896	<b>Prep Date</b> 02/05/2025	Expiration Date 02/06/2025	<u>Prepared</u> <u>By</u> Amit Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Semsettin Yesilyurt 02/06/2025
FROM	39.99990ml of W3112 + 0.00320ml o	f VP131767	i = Final Quai	ntity: 40.000 m				02/06/2025



Т

Recipe ID 1727	NAME	<u>NO.</u> VP132897	Prep Date 02/05/2025	Expiration Date 02/06/2025	Prepared By Amit Patel	<u>ScaleID</u> None	PipetteID None	Semsettin Yesilyurt 02/06/2025
FROM	39.98000ml of W3112 + 0.00400ml o ml	of VP132692	2 + 0.00800ml	of VP132711 +	0.00800ml of \	/P132819 = Fir	nal Quantity: 4	0.000

Recipe				Expiration	Prepared		<b>D</b> : (( <b>ID</b> )	Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Semsettin Yesilyurt
1727	5 PPB CCC-CCV SOM01.2 Trace	<u>VP132898</u>	02/05/2025	02/06/2025	Amit Patel	None	None	
								02/06/2025
FROM	39.98000ml of W3112 + 0.00400ml o ml	f VP132692	2 + 0.00800ml	of VP132711 +	0.00800ml of \	/P132819 = Fir	hal Quantity: 4	0.000



Recipe ID 1734	NAME BFB TUNE SOM01.2 TRACE	<u>NO.</u> VP132902	Prep Date 02/06/2025	Expiration Date 02/07/2025	Prepared By Amit Patel	<u>ScaleID</u> None	PipetteID None	Supervised By Romaben Patel 02/12/2025
<u>FROM</u>	39.99990ml of W3112 + 0.00320ml o	f VP131767	′ = Final Quai	ntity: 40.000 m	I			
Desins		i		<b>F</b> unction	Draw and			Quantized Du

Recipe				Expiration	<u>Prepared</u>			<u>Supervised By</u>		
ID	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Romaben Patel		
1727	5 PPB CCC-CCV SOM01.2 Trace	<u>VP132903</u>	02/06/2025	02/07/2025	Amit Patel	None	None			
								02/12/2025		
FROM	<b>FROM</b> 39.98000ml of W3112 + 0.00400ml of VP132692 + 0.00800ml of VP132711 + 0.00800ml of VP132819 = Final Quantity: 40.000									
	ml									



Т

Recipe ID 1727	NAME 5 PPB CCC-CCV SOM01.2 Trace	<u>NO.</u> VP132904	Prep Date 02/06/2025	Expiration Date 02/07/2025	Prepared By Amit Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Romaben Patel 02/12/2025
FROM	39.98000ml of W3112 + 0.00400ml o ml	f VP132692	2 + 0.00800ml	of VP132711 +	0.00800ml of \	(P132819 = Fir	al Quantity: 40	0.000

<u>Recipe</u>				Expiration	<b>Prepared</b>			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipetteID	Mahesh Dadoda
1734	BFB TUNE SOM01.2 TRACE	<u>VP132927</u>	02/07/2025	02/08/2025	Amit Patel	None	None	
								02/14/2025
FROM	39.99990ml of W3112 + 0.00320ml o	f VP131767	′ = Final Qua	ntity: 40.000 m	I			



Recipe ID 1727	NAME	<u>NO.</u> VP132928	Prep Date 02/07/2025		Prepared By Amit Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 02/14/2025
FROM	39.98000ml of W3112 + 0.00400ml o ml	f VP132692	2 + 0.00800ml	of VP132711 +	• 0.00800ml of \	/P132819 = Fir	al Quantity: 40	0.000

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u> Mahesh Dadoda			
1727	5 PPB CCC-CCV SOM01.2 Trace		02/07/2025	02/08/2025	Amit Patel	None	None				
FROM	FROM         39.98000ml of W3112 + 0.00400ml of VP132692 + 0.00800ml of VP132711 + 0.00800ml of VP132819 = Final Quantity: 40.000 ml										



## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	31491 / 1,2,4-Trimethylbenzene 2000ppm	063022	04/14/2025	10/14/2024 / SAM	07/06/2022 / SAM	V12993
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90319 / 1,3,5-Trimethylbenzene- 2000 ug/mL	063022	04/14/2025	10/14/2024 / SAM	07/06/2022 / SAM	V13178
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30492 / VOA Mix, OLC 03.2 VOA Mega Mix, 1mL, 2000ug/mL, P&TM	A0189417	03/03/2025	09/03/2024 / SAM	09/21/2022 / SAM	V13238
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30067 / BFB tuneing solution	A0191805	11/22/2025	11/22/2024 / SAM	01/13/2023 / SAM	V13391
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30429 / 1,2,3-Trichloropropane Standard, 2,000 ug/ml	A0188973	07/30/2025	01/30/2025 / SAM	01/23/2023 / SAM	V13440
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30429 / 1,2,3-Trichloropropane Standard, 2,000 ug/ml	A0194117	04/14/2025	10/14/2024 / SAM	02/06/2023 / SAM	V13587



## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90298 / Naphthalene, 2000 ug/ml	020223	07/08/2025	01/07/2025 / SAM	02/16/2023 / SAM	V13604
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0194279	10/31/2029	01/07/2025 / SAM	05/31/2023 / SAM	V13809
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	31491 / 1,2,4-Trimethylbenzene 2000ppm	040821	07/30/2025	01/30/2025 / SAM	06/22/2023 / SAM	V13845
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	90319 / 1,3,5-Trimethylbenzene- 2000 ug/mL	061923	07/30/2025	01/30/2025 / SAM	06/22/2023 / SAM	V13858
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0193887	04/14/2025	10/14/2024 / SAM	07/24/2023 / SAM	V13917
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute	94159 / CLP SOM01.1	012323	07/30/2025	01/30/2025 / SAM	12/21/2023 / SAM	V14081



1,3,5-Trichlorobenzene,

2000 ug/mL, in methanol

Standards, Inc.

### CHEMICAL RECEIPT LOG BOOK

4 / V14154 te / Chemtech By Lot # 4 / V14224
<b>By Lot #</b>
4 / V14224
te / Chemtech 3y Lot #
4 / V14308
te / Chemtech By Lot #
4 / V14352
te / Chemtech 3y Lot #
4 / V14454
te / Chemtech

SAM

SAM



Т

### CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30625 / VOA Stock Std, OLC 3.2 VOA Ketone Deuterated Monitoring Compounds, 1mL, 500ug/mL, d2O		07/13/2025	01/13/2025 / SAM	11/18/2024 / SAM	V14605
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30625 / VOA Stock Std, OLC 3.2 VOA Ketone Deuterated Monitoring Compounds, 1mL, 500ug/mL, d2O		07/13/2025	01/13/2025 / SAM	11/18/2024 / SAM	V14607
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30625 / VOA Stock Std, OLC 3.2 VOA Ketone Deuterated Monitoring Compounds, 1mL,	A0219189	06/12/2025	12/12/2024 / SAM	11/22/2024 / SAM	V14610
Supplier	500ug/mL, d2O	Lot #	Expiration	Date Opened /	Received Date /	Chemtech
Restek	30625 / VOA Stock Std, OLC 3.2 VOA Ketone Deuterated Monitoring Compounds, 1mL, 500ug/mL, d2O	A0219189	Date 06/12/2025	<b>Opened By</b> 12/12/2024 / SAM	Received By 11/22/2024 / SAM	Lot #
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	2310762004	07/13/2025	01/13/2025 / SAM	11/26/2024 / SAM	V14624
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	2310762004	07/06/2025	01/06/2025 / SAM	11/26/2024 / SAM	V14627



# CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	07/30/2025	01/30/2025 / SAM	12/17/2024 / SAM	V14726
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0216826	07/30/2025	01/30/2025 / SAM	12/17/2024 / SAM	V14753
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

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis





Material No.: 9077-02 Batch No.: 2310762004 Manufactured Date: 2023-08-11 Expiration Date: 2026-08-10 Revision No.: 0

# Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.5 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrablė Base (µeq/g)	≤ <b>0.10</b>	0.01
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

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

fermetrikel.

Ken Koehnlein Sr. Manager, Quality Assurance Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis





Material No.: 9077-02 Batch No.: 2310762004 Manufactured Date: 2023-08-11 Expiration Date: 2026-08-10 Revision No.: 0

# Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.5 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrablė Base (µeq/g)	≤ <b>0.10</b>	0.01
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

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

fermetrikel.

Ken Koehnlein Sr. Manager, Quality Assurance

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



**Certified Reference Material CRM** 



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

<b>CERTIFIED WEIGHT REPORT</b>					
Part Number:	94159		Solvent:	Lota	
Lot Number:	012323		Methanol	EF282-4 ISO1	
Description:	CLP SOM 01.1 Volatiles				
	42 components				
Expiration Date:	012326				
Recommended Storage:	Freezer (0 °C)				
Nominal Concentration (µg/mL):	Varied				
NIST Test ID#:	GUTB	5E-05	Balance Uncertainty	intr	
Volume(s) shown below were combined and diluted to (mL):	diluted to (mL): 100.0	0.012			

DATE	Pedro L. Rentas	eviewed By:
012323	da tento	K
DATE	Preshant Chauhan	omulated By:
012323	2 Shart Cheulan	1.00

Pedro L Rentas	SDS Information (Solvent Safely Into. On Attached pg.)
Reviewed By:	Expanded Uncertainty
	Final

Part

Compound	Number	Number	Factor	Vol. (mL)	Pipette (mL)	Conc.fua/mL)	Conc.(uo/ml.) Conc.(no/ml.)	(+++) ((notim))	CASE	Person occurs and on concerned py.	vev i frikd no
					And a subscription of the				and a		
Renzene	10000						And an a second resource of the second secon		A PARTY OF A		
Delizere	LEASE	060616	0.10	10,00	0.042	20008.6	2000.6	18.7	71-43-2	1 ppm	ort-rat 4894mo/ro
2. Iotuene	93831	060618	0.10	10.00	0.042	20002.8	2000.2	18.7	108-88-3	200 mm	ord soft Software
3. Ethyl benzene	93831	060616	0.10	10.00	0.042	20002.5	20002	18.7	100-41-4	100 nom (distandingsbun	Enternance sources
4. o-Xylene	93831	060616	0.10	10.00	0.042	20003.8	20003	19.7	05.47.B	a new present index of	Buddinnorse tartin
5. m-Xylene	93831	060616	0.10	10.00	0.042	10003.3	1000.3	40	100.00.1	[Hoverngment) mpg uni	pr-mus 1364mg/ng
6. p-Xylene	93831	060816	0.10	10.00	0.042	1006.2	1000 5	10	0.01.001	(HOWW BUSSIE Und on I	On-rat song
7. Bromodichloromethane	35171	100220	0.05	5.00	0.017	ADDIRR	0000		2004	(HRARUDUCE) udd Oni	Ort-Fatt 5g/kg
8. Dibromochloromethane	35171	100220	0.05	200	0.017	4 2000	0,000	40.0	+17-01	NN	orf-rat 916mg/kg
cis-1,2-Dichloroethene	35171	100220	0.05	8	0.017	1.1000	SUNUS	8.0L	1-86-621	NA	ort-rat 848mg/kg
10. trans-1.2-Dichloroethene	36171	100001	200	30	1000	40002	2000.5	8.01	156-59-2	NA	NA
11. Methylene chickle	36171	100000	200	300	1100	40000	20002	15.9	156-60-5	VN	orl-rat 1235mg/kg
19 11_Dichlomothana	12100	100FED	000	2.00	100	40013.9	2000.6	15.8	75-09-2	500 ppm	ort-rat 820mg/kg
Democratic and the second	0000	120100	0.0	10.00	0.042	20009.1	2000.8	18.7	75-36-4	1 ppm (4mp/m3/8H)	ort-rat 200ma/kg
13. BIOINOCRIDIONBINANO	94170	010616	0.10	10.00	0.042	20017.5	2001.7	18.7	74-97-5	200 pom (1050mo/m3/8H)	ort-rat 5000mo/ro
14. Bromotorm	94170	010616	0.10	10.00	0.042	20010.4	2000.9	18.7	75-25-2	0.5 com (Second) (stan)	Ad and D'O'ma An
15. Carbon tetrachloride	94170	010616	0.10	10.00	0.042	20006.0	2000.5	18.7	58-23-5	2 mm (12 female 110	THE POST OF
16. Chloroform	94170	010616	0.10	10.00	0.042	20019.5	2001.8	18.7	67.99.1	ED anne ("Safarantino") ("	BUDINOS2 TRAIN
17. 1,1-Dichloroethane	94170	010616	0,10	10.00	0.042	20007.6	2000 7	18.7	75 24.2	an plant (construction)	OTHER MUSTIC
18. Tetrachloroethene	94170	010618	0.10	10.00	0.042	20015.7	2004 6	10.7	101 101	uidd noi	
18. 1,1,1-Trichioroethane	94170	010616	0.10	10.00	0.042	20007.4	2000 G	18.7	74.65.6	(IBUIL)(HRADUCULUTI) UIDI CZ	
1,2-Dibromo-3-chloropropane	94171	010816	0.10	10.00	0.042	20015.3	2001 4	10.1	00100	(HRARIII/Dunness) under noo	ON-FAIL 1USUOMONG
21. 1,2-Dibromoethane	94171	010616	0,10	10.00	0.042	20017.3	2001 8	10.7	100.001	Hidd LOOM	On-Fait 170mg/kg
1,2-Dichloroethane	94171	010616	0,10	10.00	0.042	20064	STOD &	10.1	100.001	(H8) mdd 02	ortrat 108mp/vg
1,2-Dichloropropane	94171	010616	0.10	0001	0.040	- SOOOS	2000	101	200-01	(1-89) udd (xe-1)	ort-rat 670mg/vg
24. cis-1,3-Dichloropropene	94171	010618	010	10.01	0000	20040.0	-	10.1	C-19-91	(H8/Sm/gm055) mdd c/	ort-rat 1947mg/kg
trans-1.3-Dichloroonoone	QA171	010010	010	0001	2010	0.01002	CINZ	19./	9-L0-L9001	NA	NA
1 1 2 2-Tatrachicmethana	04474	010010	0.0	10.00	0.042	4.11002	2001.0	18.7	10061-02-6	NA	NA
27 1 1 2. Trichlemothene	1/140	010010	01.0	00.01	0.042	20014.3	2001.3	18.7	79-34-5	5 ppm (35mg/m3/8H)(skin)	ort-rat 800mg/kg
ry system of the constant of t	1/100	910010	01.0	10:00	0.042	20024.9	2002.4	18.8	79-00-5	10 ppm (45mg/m3/8H)(skin)	ort-rat 836mg/kg
A Hand and a hard a	L/LAR	919010	0.10	10.00	0.042	20012.9	2001.2	18.7	79-01-6	50 ppm (270mg/m3/8H)	ort-mus 2402ma/ka
Uniorobenzene	68783	091118	0.10	10.00	0.042	20001.9	2000.1	18.7	108-90-7	75 ppm (350mg/m3/8H)	art-art 2290mo/io
34. 1,2-Dichiobenzene	88788	091118	0.10	10.00	0.042	20002.9	2000.2	18.7	95-50-1	50 ppm (300ma/m3) (CL)	ort-rat 500mm/m
31. 1.3-Dichlorobenzene	99783	091118	0.10	10.00	0.042	20003.7	2000.3	18.7	541-73-1	NIA	in-mere 1062molen
1,4-Dichlorobenzene	99783	091118	0.10	10.00	0.042	20005.9	2000.5	18.7	106-48-7	75 com (450mo/m3/840	and and Roberton
Isopropylbenzene	99783	091118	0.10	10.00	0.042	20391.8	2039.1	19.0	98-82-8	50 mm /245mm/m245h	Underson a cross
34. 1,2,3-Trichlorobenzene	99783	091118	0.10	10.00	0.042	20003.7	2000.3	18.7	87.61.6	ALM AND AND ALM AND ALM AND ALM AND ALM AND	Unrial Incompring
35. 1,2,4-Trichlorobenzene	89783	091118	0.10	10.00	0.042	20084.7	2008.4	18.8	120-82-1	S. mon. (Ct.) / ADmonton(2)	Christian Loburgh
36. Styrene	32361	052120	0.10	10.00	0.042	20041.4	2004.0	18.7	100.42.6		CULTER LOOINGING
37. Carbon disulphide	94173	010716	0.10	10.00	0.042	20001.9	2000.1	18.7	75-15-0	A new (10meter) false)	Con-rat sources
38. Cyclohexane	94173	010716	0.10	10.00	0.042	20002.0	2000.1	18.7	110.82.7	SAD more (CARAMER COMP)	CITHER LEAUNDING
39. Methyl acetate	94173	010716	0.10	10.00	0.042	20002.4	2000.1	18.7	79.20.0	200 none (240mm/mm/mm	Direction 12/Vicender
40. Methylcyclohexane	94173	010716	0.10	10.00	0.042	20001.7	2000.1	18.7	108-87-2	MAA	Control of Victoria
41. Methyl tert-butyl ether (MTBE)	94173	010716	0.10	10.00	0.042	20001.2	2000.0	18.7	1824-DALA	N/4	BWGUINCZZ SDILL-LID
1,1,2-Trichloro-1,2,2-trifluoroethane	94173	010716	0.10	10.00	0.042	20001 9	2000 1	10.1		VN	0r1-r8t 4g/vg

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Standards are reperted gravimetrically using tulnoors that are collerwise stated.
 Standards are rectified (+/-) 6/3 (the stated value, unless otherwise stated.
 All Standards, after present gravimetrically using tulnoor otherwise stated.
 All Standards, after opening ansport, abound be started with cardinaler argoroprizes tabores).
 All Standards, after opening ansport, abound be stated with card and/or argoroprizes tabores).
 All Stated are argored at the stated of the stated with a stated and/or argored tabores).
 User stated are argored at the stated of the stated argored argored argored tabores argored tabores.
 User stated argored a

rement Read,"

Lot # 012323 Part # 94159

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

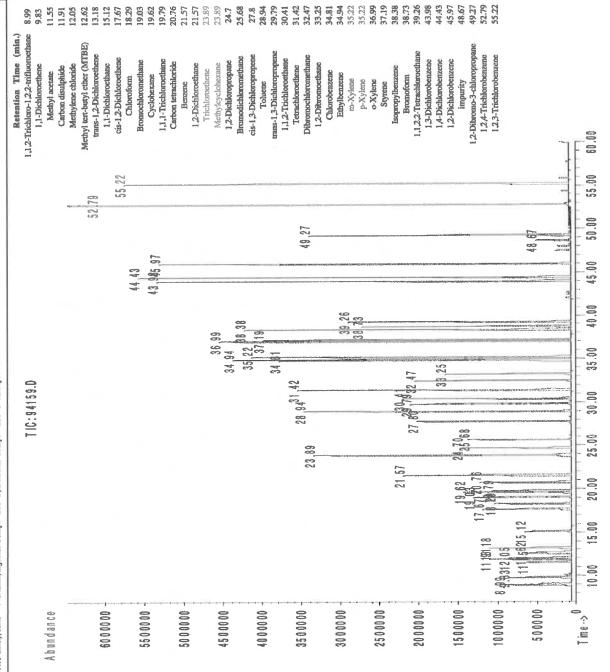
1

Certified Reference Material CRM



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

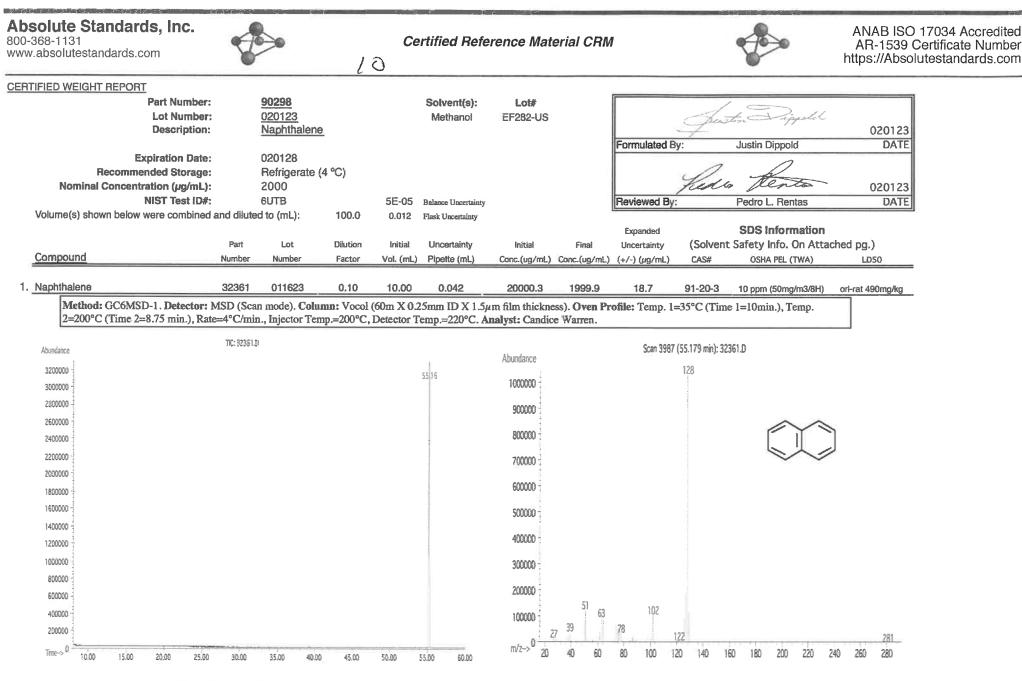
Method: GC6MSD1. Detector: Mass Selective Detector. Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Ovea Profile: Temp. 1 = 35°C (Time 1=10min.), Temp. 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Gina McLane.



Printed: 12/19/2023, 3:05:35 PM

2 of 2

Part # 94159 Lot # 012323



The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.

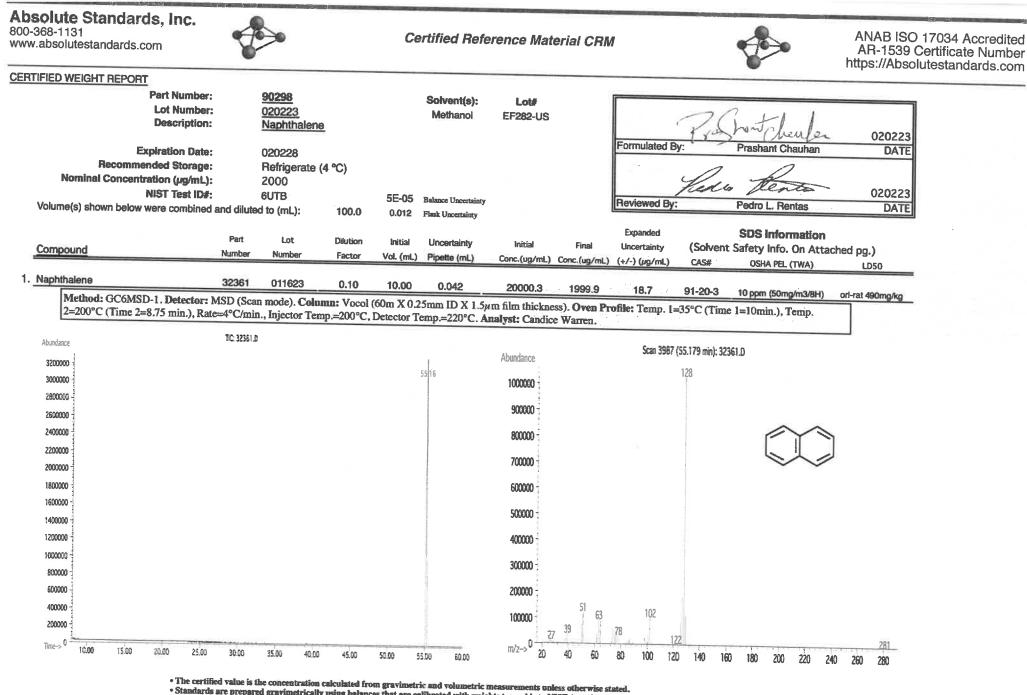
. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).

\* Standards are certiled (+/-) 0.5% of the stated value, unless otherwise stated.

• All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.

" Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result,"

NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).

\* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.

· All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.

. Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Certified Reference Material CRM	Solvent(s): Lot# Methanol DY186-US
	<u>31491</u> 040821 1,2,4-Trimethylbenzene
Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:



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

	Freshert Cheuler 040821	Formulated By: Prashant Chauhan DATE Hus Reviewed By: Pedro L. Rentas DATE	Expanded SDS Information Actual Uncertainty (Solvent Safety Info. On Attached pg.) Conc (ug/mt.) (++) (ug/mt.) CAS# OSHA PEL (TWA) UD50	05-F3-R	min.), Rate = 4°C/min., Injector Te	Scan 2758 (45.670 min): [BSB2]70475.D	105	-	$\mathbb{R}$				120					15472 199 262 3368556 396 429 474 100 150 200 250 300 350 400 450
	): Lot# I DY186-US		Actual Weight(g)	0.10140	n.), Temp. 2 = 20	000		000	000	000	000	000	000	200	000		000 51 77	20
	Solvent(s): Methanol	rtainty	y Target Weight(g)	0.10127	= 35°C (10mi	Ahundance		180000	160000	140000	120000	100000	UUUUUB	500	60000	40000	20000	0<>0
		5E-05 Balance Uncertainty 0.057 city 11-0-0-11	/ Uncertainty Purity	0.2	s). Temp. 1 =													55.00 60.00
	Ø			98.8 8	n thickness			00										50.00
	31491 040821 1,2,4-Trimethylbenzene	: (4 °C) 50.0	Nominal Conc (µg/mL)	/ 2000	ζ 1.5μm film			45,69										.00 45.00
	<u>31491</u> 040821 1,2,4-Trime	040826 Refrigerate (4 °C) 2000 6UTB ad to (mL):	Lot Number	WXBC9778V	25mm ID X Warren.	0475.D												35.00 40.
CERTIFIED WEIGHT REPORT	Part Number: Lot Number: Description:	Expiration Date: 040826 Recommended Storage: Refrigerate Nominal Concentration (µg/mL); 2000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL):	Compound RM#	1,2,4-Trimethylbenzene 475	Method GC6MSD-1: Column: Vocol (60m X 0.25mm ID X 1.5µm film thic) Temp. = 220°C. Analysis performed by Candice Warren.	TIC: [BSB2]70475.D	00	00	00	00	00	00	00	00	8	00	0	Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00
CERTIFIEL		Weig	Com	1. 1,2,4	Tem	Abundance	550000	500000	450000	400000	350000	300000	250000	200000	150000	1000000	50000	Time

Lot # 040821 Part # 31491

Printed: 6/21/2023, 10:35:34 AM

1000

ノレ 1 of 1

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

.

.

Safety Data Sheet (SDS)

GHS/OSHA Compliant

	Safety Data Sheet (SDS)	GHS/OSHA Cor	npliant	
Section I Product and Co	mpany Identification			
IDENTITY ANALYTI	CAL STANDARD DISSOLVED IN M	ETHANOL		
Manufacturer's Name Address	ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514	Emergency Tele	phone USA & CANADA phone International Revised	1 <b>-800-535-5053</b> 1 <b>-352-323-3500</b> January 1, 2024
Section II - Hazards Ident	lification			
	GHS Classification in accord	lance with 29 CF	R 1910 (OSHA HCS)	
H370 Cause da P271 Use in ve	ammable Liquid and Vapor mage to organs ntilated area , wash with soap and water Signal Word: DANGER	H301, 311, 331 H351 P280 P305,351,338	Toxic if swallowed, skin con Suspected of causing cance Use gloves, eye protection/f If in eyes, remove contacts,	er ace sheild
Section III - Composition				
Components (Specific Che Methanol	mical Identity; Common Name(s)) METHYL ALCOHOL	CAS#: 67-56-1		% (optional) > 97
INTENDED USE: REFER		esent At Trace	Quantities.	
Section IV. FIRST AID ME	ASURES			
General advice If inhaled In case of skin contact In case of eye contact If swallowed	Consult a physician. Show this safety data If inhaled, move person into fresh air. If no Wash with soap and water. Consult a phy Rinse thoroughly with plenty of water for a Do NOT induce vomiting. Rinse mouth wi	ot breathing, give artif /sician. at least 15 minutes ar	icial respiration. Consult a physician. d consult a physician.	
Section V. FIREFIGHTING	MEASURES			
Flammability Suitable extinguishing media Protective equipment for fire	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant fo Wear self contained breathing appar	No smoking. am, dry chemical or c	arbon dioxide.	it. Keep away from
Section VI. ACCIDENTAL	RELEASE MEASURES			
Personal precautions Environmental precautions Clean up	Wear respiratory protection. Avoid breathi ignition. Vapours accumulate to form expl Prevent further leakage or spillage if safe Contain spillage, and then collect and place	osive concentrations. to do so. Do not let p	roduct enter drains.	
Section VII. HANDLING A	ND STORAGE			
Precautions for safe handling Storage Conditions	Avoid contact with skin and eyes. Ave Use ventilation Keep away from sour Keep container tightly closed in a dry and kept upright to prevent leakage.	ces of ignition. No sr	noking. Prevent the build up of electro	
Section VIII. EXPOSURE	CONTROLS/PERSONAL PROTECT	ION		
	m		spected prior to use. Eye protectio	n.
Section IX - Physical/Che	mical Characteristics			

		Hamden, CT 06518-0585	FAX: 203-281-2922
Boiling Point		Specific Gravity (H2O = 1)	0.70
	65°C		0.79
Vapor Pressure (mm Hg)	96	Melting Point	-98°C
Vapor Density (AIR = 1)	1.11	Evaporation rate (Butyl Acetate = 1)	4.6
Solubility in Water COMPLETE			

PO Box 5585

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Absolute Standards Inc.

Chemical stabilityStable under recommended storage conditions.Possibility of hazardous reactionsVapours may form explosive mixture with air.Conditions to avoidHeat, flames, sparks, extreme temperature and sunlight.Materials to avoidAcid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, AcidsHazardous decomposition products formed under fire conditions. - Carbon oxides

#### Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

#### Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et, seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/lumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

Phone: 203-281-2917

		0	li												5
ADSOIUTE 800-368-1131 www.absolute	ADSOIUTE STANDARDS, INC. 800-368-1131 www.absolutestandards.com					U	ertified	Referenc	Certified Reference Material CRM	al CRM				ANAB ISC AR-1539 ( https://Abso	ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED	CERTIFIED WEIGHT REPORT Part Number: 90319 Lot Number: 90319 Lot Number: 051923 Description: 1.3.5-Trim (Mesitylen Expiration Date: 061928 Recommended Storage: Refrigerat Nominal Concentration (µg/mL): 2000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL):	AT Part Number: Lot Number: Description: Expiration Date: nended Storage: ntration (µg/mL): NIST Test ID#: vere combined and	90319 90319 061923 1.3.5-Trime (Mesitylene) 061928 Refrigerate 6UTB 6UTB	90319 90319 061923 1.3.5-Trimethylbenzene [Mesitylene] 061928 Refrigerate (4 °C) 2000 6UTB 6UTB d to (mL): 50.0	50.0	5E-05 0.001 E	Sol Meti Balance Uncertainty	Solvent: Methanol antainty	EF282-US	ω	Formulated By:	Salmi .	Cabriel Helland Gabriel Helland	061923 DATE 061923	
Compound	puno		Lot RM# Number		Nominal Conc (ug/mL)		Uncertainty Purity (%)	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty 14.) (µg/mL)	0	SDS Information (Solvent Safety Info. On Attached pg.) .AS# OSHA PEL (TWA) t	n ached pg.) LD50	
1. 1,3,5-T Metho Temp.	1,3,5-Trimethylbenzene     301     TOOOF-IC     2000     97     0.2       Method GC6MSD-1: Column: Vocol 60m X 0.25mm ID X 1.5μm film thickness). Temp. 1     Temp. 220°C. Analysis performed by Candice Warren.	m: Vocol 60n formed by Ca	301 TOOOF-IC m X 0.25mm ID X andice Warren.	DF-IC ID X 1.5μι ι.	2000 m film thic	97 kness). T		0.10315 5°C (10min.)	0.10341 ), Temp. 2 =	2004.9	8.5 min.), Rate :	108-67-8 = 4°C/min., Inje	0.10315 0.10341 2004.9 8.5 108-67-8 N/A ont-rat 5 = 35°C (10min.), Temp. 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector Temp.= 200°C, Detector	orl-rat 5000mg/kg C, Detector	
Åhindonna		TIC: [B	TIC: [BSB5]70301.D					Abun	Åbundance		Scon 3075 (4.	Start 3075 (43.095 min); [9595]70301.0			
100000								~ ì	30000				9		
000006				4	43.11			~ 15	00092						
80000	_							~ ~	240000			ъ́-Ч			
700000								N 10	00002		<u></u> ز				
60000								ina an	180000		с Б	ъ́ Э			
40000								100 Au	12000 Harrison						
30000					SCHIEF INTERNAL			H.	10000						
20000					1761 - 44 MAR ( 6 - 600 - 61			- 142	00000	1					
100000								-	0000	8	1		- 	na line e agenticanaa gaar wat i aa	
Time>0	10.00 15.00 20.00	00 25.00	30.00 35.00	0 40.00	45.00	50.00 55	55.00 60.00		2000 - 20000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2		89	रत <b>स्व</b> ह	20 20 20 20 20 20 20 20 20 20 20 20 20 2	<u>8</u> 8	
		<ul> <li>The cer</li> <li>Standau</li> <li>Standau</li> </ul>	The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated, • Standards are prepared gravimetrically using halances that are calibrated with weights traceable to NIST (see above). • Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.	the concentral d gravimetri (+/-) 0.5 % of	tion calculat cally using h ( the stated v	ed from gri alances tha alue, unless	avimetric and it are calibrat s otherwise st	l volumetric m ted with weigh sted.	reasurements u ts traceable to	nkess otherwise NIST (see abov	stated. e).				
		<ul> <li>All Stan</li> <li>Uncerts</li> <li>NIST Tet</li> </ul>	ndards, after op ainty Reference: chnical Note 129	ening ampul : Taylor, B.2 97, U.S. Govi	le, should be N. and Kuyz ernment Prij	stored with t, C.E., "Go nting Office	h caps tight a uidelines for ] e, Washingtor	nd under appr Evaluating and 1, DC, (1994).	opriate labora d Expressing (}	tory conditions. se Uncertainty e	of NIST Measu	<ul> <li>All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>			

Lot # 061923 Part # 90319

1 of 1

Printed: 6/21/2023, 10:35:38 AM

gas b

3 12

Part # 90319 Lot # 063022		Time> <sup>0</sup> 10.00 15.00 20.00 25.00	100000	200000	30000	500000	600000	700000 seducento	90000	1000000	Abundance	Method GC6MSD-1: Column: Vocol 60m X 0.25mm II Temp. = 220°C. Analysis performed by Candice Warren.	1. 1,3,5-Trimethylbenzene	Composing	NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL):	Expiration Date: Recommended Storage: Nominal Concentration (up/mL):	Part Number: Lot Number: Description:	CERTIFIED WEIGHT REPORT	Absolute Standards, Inc. 800-368-1131 www.absolutestads.com
	he certified value is the concentration calculated f tandards are prepared gravimetrically using bala tandards are certified (4/3) 0.5% of the stated valu II Standards, after opening ampule, should be ston incertainty Reference: Taylor, B.X. and Kuyat, C ST Technical Note 1297, U.S. Government Printin	.00 30.00 35.00 40.00 45.00 50.00	10. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.							چې د د کې	TIC: [8585]70301,D	1 60m X 0.25mm ID X 1.5µm film thickne by Candice Warren.	RM# Number Conc.(µg/mL) (*	Nominal	30.0	(mesitylene) te: 063027 le: Refrigerate (4 °C)			*
1 of 1	<ul> <li>The certified value is the concentration calculated from gravinnetric and volumetric measurements unless otherwise stated,</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above),</li> <li>Standards are certified (44) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening ampule, should be stored with cast tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylore, BA. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	N) SS.00 60.00	0000 8000 1017 1 1 1 1 1 1 1	80000	100000	140000 17 - 10 - 10 - 10	10005 10005 10005	22000	230000	20000 - 1.2 12 14	2-bondarce	352 0.2 0.00070 $353$ ). Temp. 1 = $35^{\circ}$ C (10min.), Temp. 2 = $200^{\circ}$	%) Weight(g) Weight(g)	<	5E-05 Balance Uncertainty 0.0003 Flask Uncertainty	V12978-98.	Solvent: Lot# Methanol EC592-US	. /	Certified Referen Material C
	r (see above). conditions. ncertainty of NIST Measurement Result,"		a 24 25				CH3 CH3		2		Star 1975 (+0.065 mm) (3932)(1991).0 105	Method GC6MSD-1: Column: Vocol 60m X 0.25mm ID X 1.5 $\mu$ m film thickness). Temp. 1 = 35°C (10min.), Temp. 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector Temp.= 200°C, Detector Temp. = 220°C. Analysis performed by Candice Warren.	L) (+/-) (µg/mL) (	Expanded SDS Information Actual Uncertainty (Solvent Safety Info. On Attached pg.)	Pedro L	Formulated By: Gabriel Helland	Gebriel Wellowed	4	CRM
Printed: 7/1/2022, 3:42:21 PM			т.		f	124						orf-rat 5000mg/kg )°C, Detector	LD50	ion (ffached pg.)	063022 DATE				ANAB ISO 17034 Accredited AR-1539 <sup>a</sup> tificate Number https://Absolut.estandards.com

Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com	•	Certified	Certified Reference Material CRM	rial CRM		ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	<u>94559</u> 121923 1.3.5-Trichlorobenzene		Solvent(s): Lot# Methanol EH485-US	s s	Child, March	131025
Expiration Date: 121928 Recommended Storage: Refrigerate Nominal Concentration ( <i>ug/</i> mL): 2000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL):	121928 Refrigerate (4 °C) 2000 6UTB 6UTB 1 diluted to (mL): 100.0	5E-05 Balance Uncertainty 0.021 Flask Uncertainty	\$	Fon	Formulated By: Anthony Mahoney	121923 DATE DATE DATE
Compound	Lot Nominal RM# Number Conc (µg/mL)	Purity Uncertainty (%) Purity	Target Actual Weight(g) Weight(g)	Actual Conc (µg/mt.) (	Expanded SDS Information Uncertainty (Solvent Safety Info. On Attached pg.) ++) (ug/mL) CAS# 0SHA PEL (TWA) LDS	hed pg.) LD50
1.         1.3.5-Tricthlorobenzene         409         STBHB643         2000         93.9         0.2           Method GC6MSD-1: Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Temp.=220°C. Analysis performed by Candice Warren.         Mathod IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	409         STBH8843         2000           im X         0.25mm ID X         i.5μm film thi           adice Warren.         D         i.5μm film thi	99.9 0.2 ickness). Temp. 1=35	0.20025 0.20059 °C (10min.), Temp. 2=2	9 2003.4 ( =200°C (8.75 min.), Rs	108-70-3 Min., Injector	1 101
TIC: [BS	TIC: [BSB3]70409.D		Abundance	Scan 3238 (5:	Scan 3238 (53.133 min): [BSB3]70408.D	]
		700.0	1400000		182	
7000000		53,11	1300000		⋻⊣	
6000000			1200000		Ş	
5000000			100000			ï
4000000			800000			
3000000			600000			
2000000			50000040004000		145	
1000000			300000	109		
Time>0 15.00 20.00 25.00 30	30.00 35.00 40.00 45.00 50	50.00 55.00 60.00	100000 54 m/z>0 60	91 131 80 100 120 14	1 131 156 223 223 320 100 120 140 160 180 200 220 240 260 280 300 320	297 .320 <b>300 320</b>
<ul> <li>The certified v</li> <li>Standards are</li> <li>Standards are</li> <li>All Standards, with the standards, with the standards, with the standards, with the standards with the s</li></ul>	<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+/-) 0.5% of the stated value, unless ofkerwise stated).</li> <li>All Standards, after opening ampule, should be stored with resp stated.</li> <li>All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	m gravimetric and volum s that are calibrated with mless otherwise stated. I with caps tight and und , "Guidelines for Evaluat GORee, Wackington, DC	etric measurements unless • weights traceable to NIS' = appropriate laboratory ing and Expressing the Un • (1994).	otherwise stated. T (see above). conditions. teertainty of NIST Measur	ement Result,"	

Printed: 2/27/2024, 11:57:11 AM

1 of 1

Part # 94559 Lot # 121923

#### Safety Data Sheet (SDS)

	Safety Data Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Product and Co	ompany Identification			
IDENTITY ANALYTI	CAL STANDARD DISSOLVED IN M	METHANOL		
Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Tele	phone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr.		phone International	1-352-323-3500
	Hamden CT, 06514	Date Prepared/		January 1, 2023
Section II - Hazards Iden	tification			
	GHS Classification in accor	rdance with 29 CF	R 1910 (OSHA HCS)	
H225 Highly Fla	ammable Liquid and Vapor	H301, 311, 331	Toxic if swallowed, skin contac	t, inhaled
	mage to organs	H351	Suspected of causing cancer	
	ntilated area , wash with soap and water	P280 P305,351,338	Use gloves, eye protection/face If in eyes, remove contacts, ring	sheild se with water
۵ ۵	Signal Word: DANGER	, ,	· · · · · · · · · · · · · · · · · · ·	
Section III - Composition				
Components:	CAS#:	LD50 Oral - Rat	OSHA PEL	% (optional)
Methanol	67-56-1	2,769 mg/kg	200 ppm	> 99
INTENDED USE: REFERI Section IV. FIRST AID ME				
General advice	Consult a physician. Show this safety dat	ta sheet to the doctor	n attendance.Move to safe area.	
f inhaled In case of skin contact	If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph		cial respiration. Consult a physician.	
n case of eye contact	Rinse thoroughly with plenty of water for		d consult a physician.	
fswallowed	Do NOT induce vomiting. Rinse mouth w			
Section V. FIREFIGHTING	MEASURES			
lammability	Flammable in the presence of a sour	rce of ignition when th	e temperature is above the flash point. Ke	ep away from
uitable autinoviabine media	heat/sparks/open flame/hot surface.	No smoking.		
Suitable extinguishing media Protective equipment for fire	Use water spray, alcohol-resistant fo Wear self contained breathing appar			
Section VI. ACCIDENTAL	RELEASE MEASURES			
ersonal precautions	Wear respiratory protection. Avoid breathing	ing vapors, mist or gas	. Ensure adequate ventilation. Remove a	I sources of
invironmental precautions	ignition. Vapours accumulate to form expl Prevent further leakage or spillage if safe		oduct enter drains	
lean up	Contain spillage, and then collect and place			ection 13).
ection VII. HANDLING AN	ID STORAGE			
recautions for safe handling	Avoid contact with skin and eyes. Av			
torage Conditions	Use ventilation Keep away from sour Keep container tightly closed in a dry and kept upright to prevent leakage.	rces of ignition. No sm and well-ventilated pl	oking. Prevent the build up of electrostation ace. Containers which are opened must b	: charge. e carefully resealed
ection VIII. EXPOSURE C	ONTROLS/PERSONAL PROTECT	ION		
lethanol 67-56-1 TWA	200 ppm			
kin notation TWA 200 ppm	1			
otential for skin absorption , inge	estion and inhalation. Respiratory protection Handle with glove	Cloues must be inc	posted prior to use	
oid contact with skin, eyes and	clothing. Wash hands thoroughly after han	dling the product.	pected prior to use. Eye protection.	
action IV Dhusiasl/Ohan				

## Section IX - Physical/Chemical Characteristics

Absolute Standards Inc.

PO Box 5585 Hamden, CT 06518-0585

Section X. STABILITY AND REACTIVITY           Chemical stability         Stable under recommendations           Possibility of hazardous reactions         Vapours may form exp           Conditions to avoid         Heat, flames, sparks, least	ended storag	Melting Point Evaporation rate (Butyl Acetate = 1) /ITH CHARACTERISTIC PUNGENT ODOR.	0.79 -98°C 4.6
Vapor Density (AIR = 1) Solubility in Water COMPLETE Appearance and Odor CLEAR, COLORLESS Section X. STABILITY AND REACTIVITY Chemical stability Possibility of hazardous reactions Conditions to avoid	1.11 LIQUID W ended storag	(Butyl Acetate = 1)	
Solubility in Water     COMPLETE       Appearance and Odor     CLEAR, COLORLESS       Section X. STABILITY AND REACTIVITY       Chemical stability     Stable under recommend       Possibility of hazardous reactions     Vapours may form exp       Conditions to avoid     Heat, flames, sparks	LIQUID W ended storag	(Butyl Acetate = 1)	4.6
Appearance and Odor CLEAR, COLORLESS Section X. STABILITY AND REACTIVITY Chemical stability Possibility of hazardous reactions Conditions to avoid	ended storag		
Section X. STABILITY AND REACTIVITY Chemical stability Possibility of hazardous reactions Conditions to avoid Heat, flames, sparks,	ended storag		
Chemical stability Possibility of hazardous reactions Conditions to avoid Heat, flames, sparks,	olosive mixtu		
Possibility of hazardous reactions Vapours may form exp Conditions to avoid Heat, flames, sparks	olosive mixtu	anoitions	
Materials to avoid Acid chlorides, Acid ar Hazardous decomposition products formed under fire condition	nhydrides, O	re with air. perature and sunlight. xidizing agents, Alkali metals, Reducing agents, Acids	
Section XI. TOXICOLOGICAL INFORMATION			
LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed. Section XII. ECOLOGICAL INFORMATION FOR F	REPORTA	BLE QUANTITY OF 5000 lbs.	
LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h			
Section XIII. DISPOSAL CONSIDERATIONS			
Dispose with normal Laboratory Solvent Waste.			
Section XIV. TRANSPORT INFORMATION			
UN number: 1230 Class: 3 Packing group: II U	ATA IN number: roper shipp	: 1230 Class: 3 Packing group: Il ping name: Methanol	
Section XV. REGULATORY INFORMATION			

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.



**CERTIFIED REFERENCE MATERIAL** 

# **Certificate of Analysis**



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

www.restek.com



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

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

Catalog No. :	30429	Lot No.:	A0188973	
Description :	1,2,3-Trichloropropane Standard			
	1,2,3-Trichloropropane 2000µg/m	L, P&T Methanol, 1n	iL/ampul	
Container Size :	<u>2 mL</u>	Pkg Amt:	> 1 mL	
Expiration Date :	August 31, 2027	Storage:	0°C or colder	
		Ship:	Ambient	

#### CERTIFIED VALUES

Elution Order		Compound	Grav. Conc. _(weight/volume)	Expanded (95% C.L.;	Uncertainty K=2)	
1	1,2,3-Trichloropropane CAS # 96-18-4 Purity 99%	(Lot 332900)	2,000.0 µg/mL	11.7371 112.1494 114.7730	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Methanol					

CAS # 67-56-1 Purity 99%

- writy 99%

 Column:

 105m x 0.53mm x 3.0μm

 Rtx-502.2 (cat.#10910)

 Carrier Gas:

 hydrogen-constant pressure 11.0 psi.

 Temp. Program:

 40°C (hold 2 min.) to 240°C

 @ 8°C/min. (hold 5 min.)

 Inj. Temp:

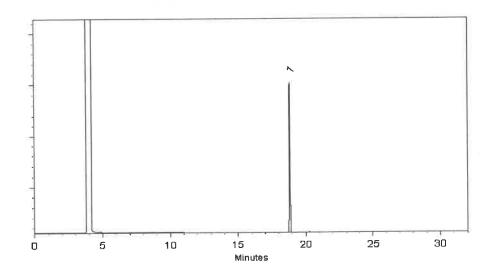
 200°C

 Det. Temp:

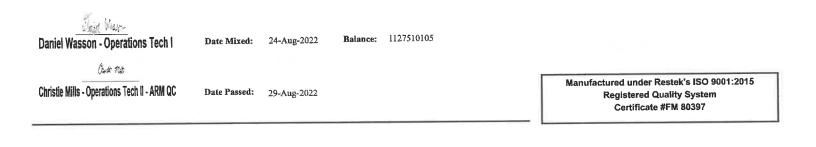
 250°C

 Det. Type:

 FID



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



#### Expiration Notes:

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

#### Purity Notes:

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

#### Certified Uncertainty Value Notes:

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

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

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

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

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

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

#### Manufacturing Notes:

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

#### Handling Notes:

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

.



## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**



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

www.restek.com



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

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

Catalog No. :	30492	Lot No.: <u>A0189417</u>			
Description :	OLC 03.2 VOA Mega Mix				
	OLC 03.2 VOA Mega Mix 1,00	0-2,000µg/mL, P&T Met	hanol, 1mL/ampul		
Container Size :	<u>2 mL</u>	Pkg Amt:	> 1 mL		
Expiration Date :	September 30, 2025	Storage:	0°C or colder		
		Ship:	Ambient		

#### CERTIFIED VALUES

Elution Order	Compo	und -	Grav. Conc (weight/volur		Expanded L (95% C.L.; H	and the second se	
1	1,1,2-Trichlorotrifluoroethane (C CAS # 76-13-1 Purity 99%	FC-113) (Lot 00016133)	2,007.0 µg/	/mL +/- +/- +/-	11.7782 121.1018 121.3893	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	1,1-dichloroethene CAS # 75-35-4 Purity 99%	(Lot SHBG8609V)	2,010.7 μg/	/mL +/- +/- +/-	15.5022 121.7394 122.0264	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	Methyl acetate CAS # 79-20-9 Purity 99%	(Lot SHBM1320)	2,012.5 μg/	/mL +/- +/- +/-	11.8105 121.4337 121.7219	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	Methylene chloride (dichloromet CAS # 75-09-2 Purity 99%	hane) (Lot SHBP1417)	2,010.6 µg/	/mL +/- +/- +/-	15.5019 121.7364 122.0234	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
5	Carbon disulfide CAS # 75-15-0 Purity 99%	(Lot N28F701)	<b>2,016.0</b> μg/s	'mL +/- +/- +/-	11.8310 121.6448 121.9336	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
6	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4 Purity 99%	(Lot SHBN6497)	2 <b>,</b> 012.0 μg/ı	'mL +/- +/- +/-	11.8075 121.4035 121.6917	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
7	trans-1,2-Dichloroethene CAS # 156-60-5 Purity 99%	(Lot MKBH9850V)	2,013.3 µg/ı	mL +/- +/- +/-	15.5227 121.8999 122.1873	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

8	1,1-Dichloroethane CAS # 75-34-3 Purity 99%	(Lot 760200)	2,013.4 µg/mL	+/- 15.5229 +/- 121.9014 +/- 122.1888	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
9	cis-1,2-Dichloroethene CAS # 156-59-2 Purity 99%	(Lot MKCP7830)	2,009.0 µg/mL	+/- 11.7899 +/- 121.2225 +/- 121.5102	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
10	chloroform CAS # 67-66-3 Purity 99%	(Lot SHBN8469)	2,012.3 μg/mL	+/- 15.5146 +/- 121.8363 +/- 122.1235	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
11	Bromochloromethane CAS # 74-97-5 Purity 99%	(Lot 00008541)	2,019.0 μg/mL	+/- 11.8486 +/- 121.8259 +/- 122.1150	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
12	1,1,1-trichloroethane CAS # 71-55-6 Purity 99%	(Lot RD220215)	2,012.5 μg/mL	+/- 15.5163 +/- 121.8499 +/- 122.1372	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
13	Cyclohexane CAS # 110-82-7 Purity 99%	(Lot EA003-US)	2,009.5 μg/mL	+/- 11.7929 +/- 121.2526 +/- 121.5405	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
14	carbon tetrachloride CAS # 56-23-5 Purity 99%	(Lot SHBL8097)	2,012.3 μg/mL	+/- 15.5146 +/- 121.8363 +/- 122.1235	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
15	1,2-Dichloroethane CAS # 107-06-2 Purity 99%	(Lot MKCN9758)	2,016.3 μg/mL	+/- 15.5454 +/- 122.0785 +/- 122.3663	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
16	Benzene CAS# 71-43-2 Purity 99%	(Lot MKCM9242)	2,018.0 μg/mL	+/- 11.8428 +/- 121.7655 +/- 122.0546	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
17	Trichloroethene CAS# 79-01-6 Purity 99%	(Lot SHBL5816)	2,009.0 μg/mL	+/- 15.4891 +/- 121.6365 +/- 121.9233	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
18	Methylcyclohexane CAS# 108-87-2 Purity 99%	(Lot SHBN1699)	2,009.5 µg/mL	+/- 11.7929 +/- 121.2526 +/- 121.5405	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
19	1,2-Dichloropropane CAS # 78-87-5 Purity 99%	(Lot BCBR0882V)	2,016.1 µg/mL	+/- 15.5439 +/- 122.0664 +/- 122.3541	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
20	bromodichloromethane CAS # 75-27-4 Purity 99%	(Lot MKCM7156)	2,011.4 µg/mL	+/- 15.5074 +/- 121.7803 +/- 122.0674	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
21	cis-1,3-Dichloropropene CAS # 10061-01-5 Purity 99%	(Lot RD220311)	2,011.3 μg/mL	+/- 15.5073 +/- 121.7788 +/- 122.0659	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
22	Toluene CAS # 108-88-3 Purity 99%	(Lot MKCQ2779)	2,014.0 µg/mL	+/- 11.8193 +/- 121.5242 +/- 121.8126	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
23	trans-1,3-Dichloropropene CAS # 10061-02-6 Purity 98%	(Lot RD220228A)	2,014.7 μg/mL	+/- 15.5331 +/- 121.9821 +/- 122.2697	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

24	1,1,2-Trichloroethane CAS # 79-00-5 Purity 99%	(Lot FGB01)	2,013.0	µg/mL	+/- +/- +/-	121.8787	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
25	Tetrachloroethene CAS # 127-18-4 Purity 99%	(Lot SHBJ7422)	2,012.0	μg/mL	+/- +/- +/-	121.8212	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
26	dibromochloromethane CAS # 124-48-1 Purity 99%	(Lot MKCM8659)	2,015.6	μg/mL	+/- +/- +/-	15.5404 122.0391 122.3268	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
27	1,2-Dibromoethane (EDB) CAS # 106-93-4 Purity 99%	(Lot BCCF5058)	2,007.5	µg/mL	+/- +/- +/~	11.7811 121.1320 121.4195	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
28	Chlorobenzene CAS # 108-90-7 Purity 99%	(Lot SHBL8110)	2,016.5	µg/mL	+/- +/- +/-	15.5468 122.0891 122.3769	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
29	Ethylbenzene CAS # 100-41-4 Purity 99%	(Lot SHBM4308)	2,012.0	µg/mL	+/- +/- +/-	11.8075 121.4035 121.6917	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
30	m-Xylene CAS # 108-38-3 Purity 99%	(Lot Q13G020)	1,008.5 µ	ug/mL	+/- +/- +/-	5.9184 60.8526 60.9970	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
31	p-Xylene CAS # 106-42-3 Purity 99%	(Lot 10234437)	1,004.0 µ	ıg/mL	+/- +/- -+/-	5.8920 60.5811 60.7249	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
32	o-Xylene CAS # 95-47-6 Purity 98%	(Lot SHBN5105)	2,006.6 µ	ıg/mL	+/- +/- +/-	11.7756 121.0746 121.3620	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
33	Styrene CAS # 100-42-5 Purity 99%	(Lot MKCQ3390)	2,008.0 μ	ıg/mL	+/- +/- +/-	11.7841 121.1621 121.4497	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
34	Isopropylbenzene (cumene) CAS # 98-82-8 Purity 99%	(Lot Z20D022)	2,015.0 μ	.g/mL	+/-	11.8251 121.5845 121.8731	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
35	bromoform CAS # 75-25-2 Purity 98%	(Lot SHBK4455)	2,015.3 μ	g/mL	+/-	15.5377 122.0177 122.3054	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
36	1,1,2,2-Tetrachloroethane CAS # 79-34-5 Purity 99%	(Lot CFA4D)	2,011.9 µį	g/mL	+/-	15.5119 121.8151 122.1023	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
37	1,3-Dichlorobenzene CAS # 541-73-1 Purity 99%	(Lot BCCD5315)	2,016.2 µş	g/mL	+/-	15.5445 122.0709 122.3587	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
38	1,4-Dichlorobenzene CAS # 106-46-7 Purity 99%	(Lot MKBS4401V)	2,019.0 με	g/mL	+/-	15.5660 122.2404 122.5286	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
39	1,2-Dichlorobenzene CAS # 95-50-1 Purity 99%	(Lot SHBN3835)	2,011.9 µg	g/mL	+/-	15.5113 121.8106 122.0977	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

40	1,2-Dibromo-3-chloropropane CAS # 96-12-8 Purity 97%	(Lot HBMVB)	2,016.6 µg/mL	+/- 11.8347 +/- 121.6829 +/- 121.9717	μg/mL Gravimetric μg/mL Unstressed μg/mL Stressed
41	1,2,4-Trichlorobenzene CAS # 120-82-1 Purity 99%	(Lot SHBM0526)	2,012.5 µg/mL	+/- 11.8105 +/- 121.4337 +/- 121.7219	μg/mL Gravimetric μg/mL Unstressed μg/mL Stressed
42	1,2,3-Trichlorobenzene CAS # 87-61-6 Purity 99%	(Lot MKBX7627V)	2,012.0 μg/mL	+/- 11.8075 +/- 121.4035 +/- 121.6917	μg/mL Gravimetric μg/mL Unstressed μg/mL Stressed

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

Column:

60m x 0.25mm x 1.4µm Rtx-502.2 (cat.#10916)

**Carrier Gas:** 

helium-constant pressure 30 psi

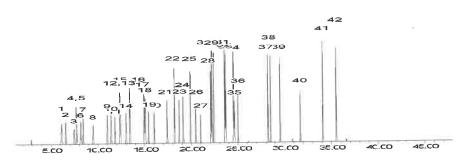
Temp. Program:

40°C (hold 6 min.) to 240°C @ 6°C/min. (hold 10 min.)

Inj. Temp: 200°C

Det. Temp: 250°C

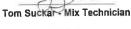
Det. Type: MSD



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.

09-Sep-2022 Date Mixed:

Balance: B707717271



Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Sep-2022 Manufactured under Restek's ISO 9001:2015 **Registered Quality System** Certificate #FM 80397

#### **Expiration Notes:**

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

#### Purity Notes:

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

#### Certified Uncertainty Value Notes:

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

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

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

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

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

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

#### Manufacturing Notes:

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

#### Handling Notes:

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



www.restek.com

## **CERTIFIED REFERENCE MATERIAL**



## **Certificate of Analysis**

chromatographic plus



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. :	30067	Lot No.: A0191805
Description :	4-Bromofluorobenzene Standard	
	4-Bromofluorobenzene Standard 2, 1mL/ampul	500μg/mL, P&T Methanol,
Container Size :	2 mL	Pkg Amt: _ > 1 mL
Expiration Date :	November 30, 2027	Storage: 0°C or colder
		Ship: Ambient

#### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1-Bromo-4-fluorobenzene (BFB)	460-00-4	184975	99%	2,483.9 µg/mL	+/- 139.5488

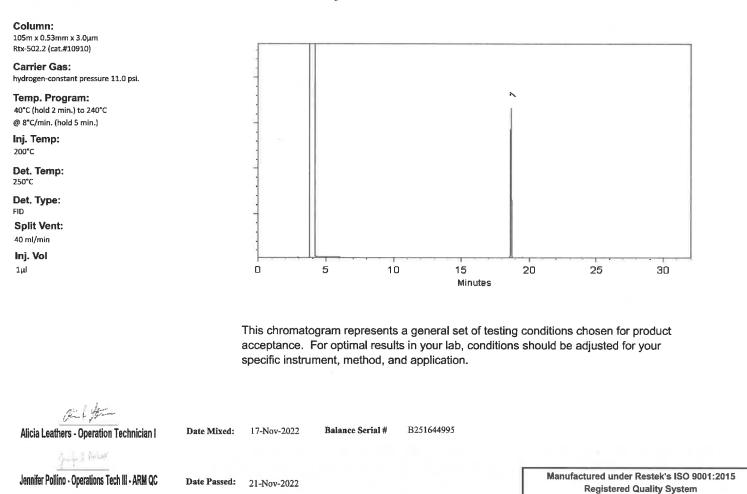
\* Expanded Uncertainty displayed in same units as Grav. Conc.

 Solvent:
 P&T Methanol

 CAS #
 67-56-1

 Purity
 99%







Certificate #FM 80397

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### Manufacturing Notes:

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

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





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. :	30006 Lot No.: <u>A0193887</u>				
Description :	VOA Calibration Mix #1				
	VOA Calibration Mix #1 5,00 1mL/ampul	00µg/mL, P&T Methanol/W	ater(90:10),		
Container Size :	2 mL	Pkg Amt:	> 1 mL		
Expiration Date :	April 30, 2026	Storage:	0°C or colder		
		Ship:	Ambient		

#### CERTIFIED VALUES

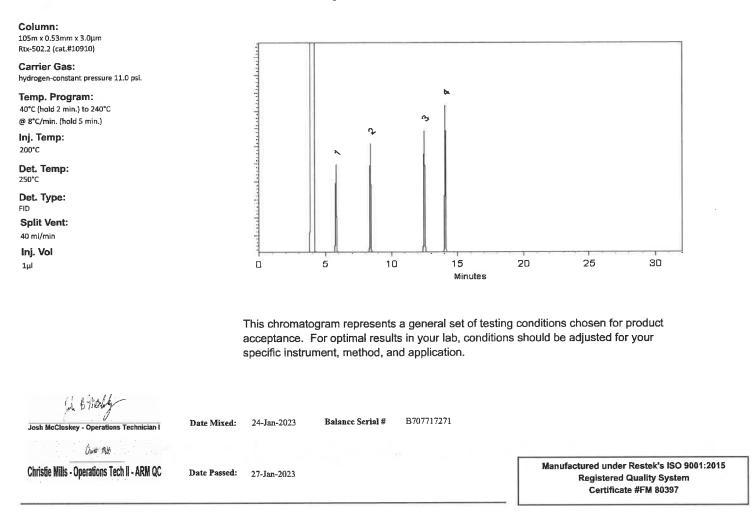
Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Acetone	67-64-1	SHBP8774	99%	5,006.5 μg/mL	+/- 173.0015
2	2-Butanone (MEK)	78-93-3	SHBN9536	99%	5,008.5 μg/mL	+/- 173.0706
3	4-Methyl-2-pentanone (MIBK)	108-10-1	SHBP4724	99%	5,000.3 µg/mL	+/- 172.7884
4	2-Hexanone	591-78-6	MKCQ6663	99%	5,001.7 μg/mL	+/- 172.8345

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

Solvent: P&T Methanol/Water (90:10)

CAS # 67-56-1/7732-18-5 Purity 99%







#### **Expiration Notes:**

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

#### **Purity Notes:**

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### **Manufacturing Notes:**

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

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





www.restek.com

## **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**

chromatographic plus



hilahad



#### 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.

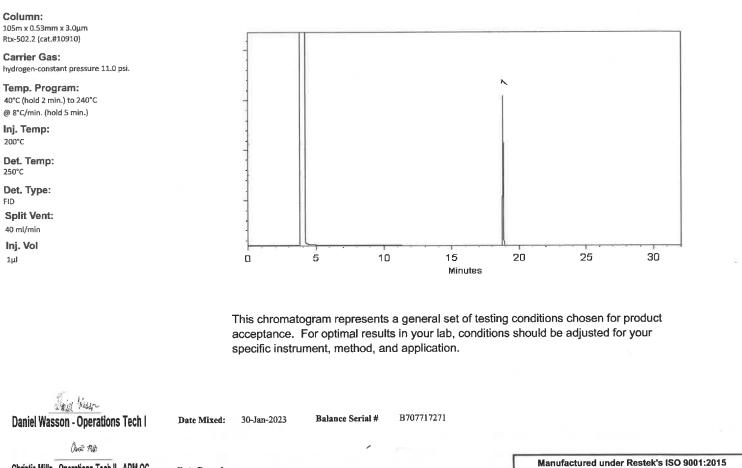
Catalog No. :	30429	Lot No.: <u>A0194117</u>				
Description :	1,2,3-Trichloropropane Standard					
	1,2,3-Trichloropropane 2000µg/mL, F	&T Methanol, 1m	hL/ampul			
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	January 31, 2028	nuary 31, 2028 Storage:				
		Ship:	Ambient			

#### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	- Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2,3-Trichloropropane	96-18-4	BCBH8722V	99%	2,013.8 µg/mL	+/- 113.1502

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

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



Christie Mills - Operations Tech II - ARM QC

Date Passed: 02-Feb-2023

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



#### Expiration Notes:

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

#### **Purity Notes:**

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### Manufacturing Notes:

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

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



۰.



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. :	30042	Lot No.:	A0194279	
<b>Description</b> :	502.2 Calibration Mix #1			
	502.2 Calibration Mix #1 2,000µ	g/mL, P&T Methanol,	ImL/ampul	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	October 31, 2029	Storage:	0°C or colder	
		Ship:	Ambient	

#### CERTIFIED VALUES

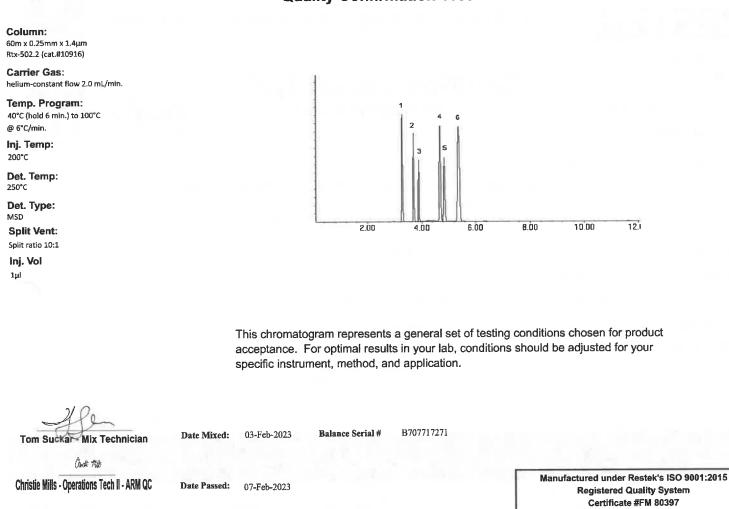
Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Dichlorodifluoromethane (CFC-12)	75-71-8	00012554	99%	2,001.5 µg/mL	+/- 112.7231
2	Chloromethane (methyl chloride)	74-87-3	SHBK6571	99%	2,001.2 μg/mL	+/- 112.5863
3	Vinyl chloride	75-01-4	00015559	99%	2,001.4 μg/mL	+/- 112.6561
4	Bromomethane (methyl bromide)	74-83-9	101604	99%	2,006.4 µg/mL	+/- 112.8262
5	Chloroethane (ethyl chloride)	75-00-3	107-401039114-1	99%	2,001.9 µg/mL	+/- 112.5897
6	Trichlorofluoromethane (CFC-11)	75-69-4	MKCL8411	99%	2,000.8 μg/mL	+/- 112.6473

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

Solvent: P&T Methanol CAS # 67-56-1

Purity 99%





#### Expiration Notes:

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

#### **Purity Notes:**

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### Manufacturing Notes:

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

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





www.restek.com

## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**

chromatographic plus



ų



### 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. :	30091	Lot No.: <u>A0209905</u>			
Description :	L/C VOA Internal Standard Mix				
	L/C Internal Std 2500µg/mL, P&T	Methanol, 1mL/amp	lı.		
Container Size :	2 mL	Pkg Amt:	> 1 mL		
Expiration Date :	March 31, 2029	Storage:	0°C or colder		
		Ship:	Ambient		

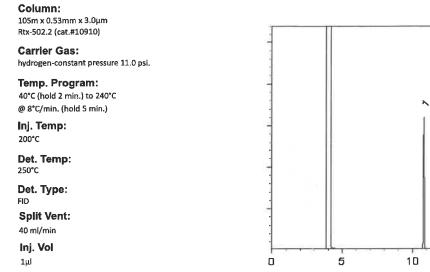
#### CERTIFIED VALUES

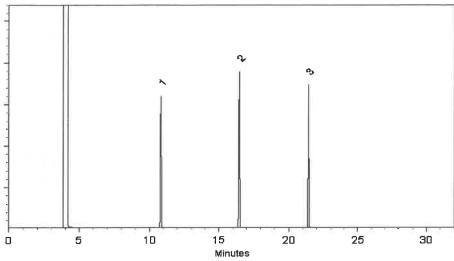
\* Expanded Uncertainty displayed in same units as Grav. Conc.

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Difluorobenzene	540-36-3	MKCS8657	99%	2,508.0 µg/mL	+/- 142.0596
2	Chlorobenzene-d5	3114-55-4	PR-31132	99%	2,512.0 μg/mL	+/- 142.2862
3	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99%	2,512.0 μg/mL	+/- 142.2862

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

\_\_\_\_\_





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.

Steres

Ethan Winiarski - Operations Tech I

Date Mixed: 05-Apr-2024

Balance Serial #

Serial # 1127510105

Tillen Hurthy Dillan Murphy - Operations Technician I

perations Technician I Date Passed:

Passed: 08-Apr-2024

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

#### **Expiration Notes:**

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

#### Purity Notes:

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### **Manufacturing Notes:**

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

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



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. :	30006	Lot No.:	A0210618	
<b>Description</b> :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,00 1mL/ampul			
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	July 31, 2027	Storage:	0°C or colder	
	3	Ship:	Ambient	

#### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Acetone	67-64-1	SHBQ8504	99%	5,014.8 μg/mL	+/- 173.2883
2	2-Butanone (MEK)	78-93-3	SHBQ4704	99%	5,012.4 μg/mL	+/- 173.2054
3	4-Methyl-2-pentanone (MIBK)	108-10-1	SHBP9200	99%	5,011.6 μg/mL	+/- 173.1777
4	2-Hexanone	591-78-6	MKCQ6663	99%	5,013.0 µg/mL	+/- 173.2261

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

Solvent: P&T Methanol/Water (90:10)

CAS # 67-56-1/7732-18-5 Purity 99%

-



#### **Expiration Notes:**

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

#### **Purity Notes:**

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### **Manufacturing Notes:**

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

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



www.restek.com

## **CERTIFIED REFERENCE MATERIAL**

**Certificate of Analysis** 

chromatographic plus



Walah

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.

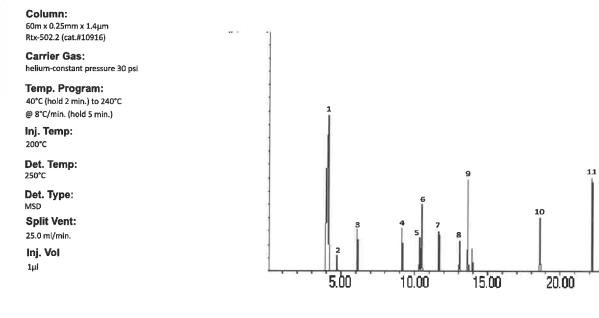
Catalog No. :	b.: <u>30624</u> Lot No.: <u>A0211457</u>					
<b>Description</b> :	SOM 01.1 VOA DMC Non-Ketones Standard					
	SOM 01.1 VOA DMC Non-K 1mL/ampul	cetones Standard 500μg/m	L, Methanol-OD,			
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	May 31, 2027	Storage:	0°C or colder			
		Ship:	Ambient			

#### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl Chloride-d3	6745-35-3	PR-26294	99%	515.3 μg/mL	+/- 42.5161
2	Chloroethane-d5	19199-91-8	PR-19060	99%	498.2 μg/mL	+/- 40.0866
3	1,1-Dichloroethylene-d2	22280-73-5	PR-21050	99%	503.0 µg/mL	+/- 28.2630
4	Chloroform-d	865-49-6	A0219685001	99%	503.0 μg/mL	+/- 28.2630
5	1,2-Dichloroethane-d4	17060-07-0	PR-33313	99%	503.0 µg/mL	+/- 28.2630
6	Benzene-d6	1076-43-3	PR-33510	99%	501.0 µg/mL	+/- 28.1506
7	1,2-Dichloropropane-d6	93952-08-0	Z-322	99%	503.0 μg/mL	+/- 28.2630
8	1,3-Dichloropropene-d4 (cis/ trans mixture) 58% cis Isomer; 42% trans Isomer	202656-23-3	Z-181	99%	504.0 µg/mL	+/- 28.3192
9	Toluene-d8	2037-26-5	PR-34141	99%	503.0 μg/mL	+/- 28.2630
10	1,1,2,2-Tetrachloroethane-d2	33685-54-0	F465P1	99%	502.0 μg/mL	+/- 28.2068
11	1,2-Dichlorobenzene-d4	2199-69-1	PR-32597	99%	503.0 μg/mL	+/- 28.2630

#### Solvent: Methanol-OD CAS# 1455-13-6 Purity 99%

## **Quality Confirmation Test**



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.

Tom Suckar-Mix Technician

Date Mixed: 15-May-2024 Balance Serial #

1128342314

Tellen Hursely **Dillan Murphy - Operations Technician I** 

Date Passed: 17-May-2024 Manufactured under Restek's ISO 9001:2015 **Registered Quality System** Certificate #FM 80397

25.00

30.00

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

#### **Certified Uncertainty Value Notes:**

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

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

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

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

#### Manufacturing Notes:

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

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



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.

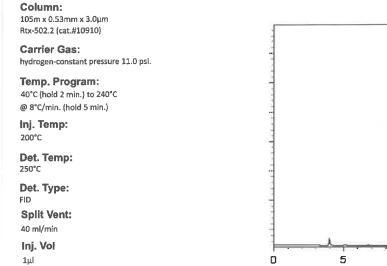
Catalog No. :	30625 Lot No.: <u>A0216280</u>					
Description :	OLC 3.2 VOA Deuterated Mo	nitoring Compounds				
OLC 3.2 VOA Ketone Deuterated Monitoring Compounds 500µg/mL, Deuterium Oxide, 1mL/ampul						
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	March 31, 2026	Storage:	10°C or colder			
		Ship:	Ambient			

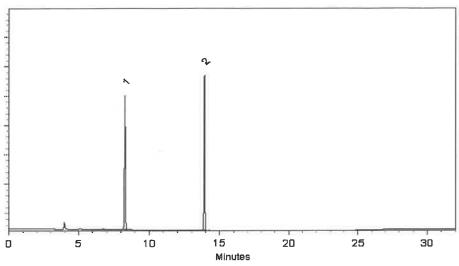
#### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Butanone-d5	24313-50-6	M-276	99%	504.0 μg/mL	+/- 17.5357
2	2-Hexanone-d5	4840-82-8	GH-242	99%	502.0 μg/mL	+/- 17.4661

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

Solvent: Deuterium oxide CAS # 7789-20-0 Purity 99%





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.

TUVR

Richard Zimmerman - Operations Tech I

Date Mixed: 10-S

10-Sep-2024 B

Balance Serial # B251644995

<u>ینایہ استقبر</u> Dillan Murphy - Operations Technician I

Date Passed: 12-Sep-2024

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

### **General Certified Reference Material Notes**

### **Expiration Notes:**

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

### **Purity Notes:**

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

### **Certified Uncertainty Value Notes:**

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

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

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

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

### Manufacturing Notes:

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

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



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

www.restek.com

### **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.

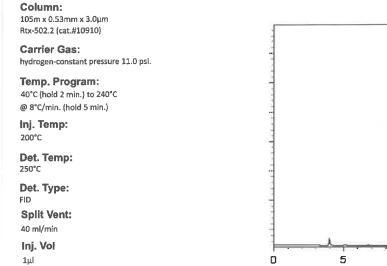
Catalog No. :	30625	Lot No.:	<u>A0216280</u>
Description :	OLC 3.2 VOA Deuterated Mo	nitoring Compounds	
	OLC 3.2 VOA Ketone Deuter Deuterium Oxide, 1mL/ampu		nds 500µg/mL,
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	March 31, 2026	Storage:	10°C or colder
		Ship:	Ambient

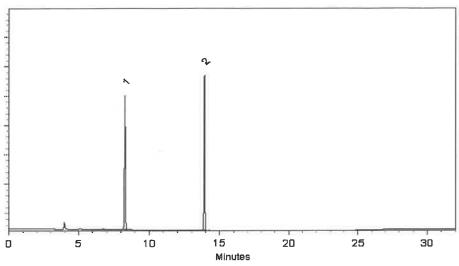
### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2-Butanone-d5	24313-50-6	M-276	99%	504.0 μg/mL	+/- 17.5357
2	2-Hexanone-d5	4840-82-8	GH-242	99%	502.0 μg/mL	+/- 17.4661

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

Solvent: Deuterium oxide CAS # 7789-20-0 Purity 99%





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.

TUVR

Richard Zimmerman - Operations Tech I

Date Mixed: 10-S

10-Sep-2024 B

Balance Serial # B251644995

<u>ینایہ استقبر</u> Dillan Murphy - Operations Technician I

Date Passed: 12-Sep-2024

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

### **General Certified Reference Material Notes**

### **Expiration Notes:**

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

### **Purity Notes:**

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

### **Certified Uncertainty Value Notes:**

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

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

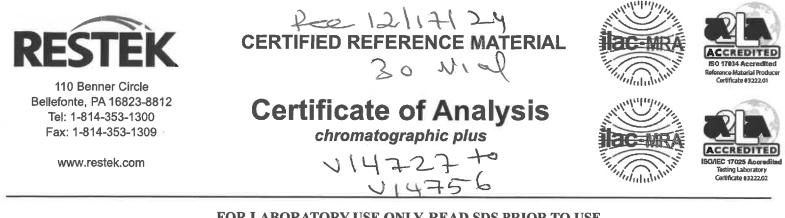
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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

### Manufacturing Notes:

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

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



### 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. :	30042	Lot No.:	A0216826	
<b>Description</b> :	502.2 Calibration Mix #1			
	502.2 Calibration Mix #1 2,000	)µg/mL, P&T Methanol, 1	ImL/ampul	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	May 31, 2031	Storage:	0°C or colder	
		Ship:	Ambient	

### CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Dichlorodifluoromethane (CFC-12)	75-71-8	00022922	99%	2,000.9 µg/mL	+/- 112.4144
2	Chloromethane (methyl chloride)	74-87-3	00022694	99%	2,000.7 μg/mL	+/- 112.3998
3	Vinyl chloride	75-01-4	00015559	99%	2,000.3 μg/mL	+/- 112.3779
4	Bromomethane (methyl bromide)	74-83-9	00017022	99%	2,001.8 µg/mL	+/- 112.4650
5	Chloroethane (ethyl chloride)	75-00-3	107-401039114-1	99%	2,000.1 μg/mL	+/- 112.3700
6	Trichlorofluoromethane (CFC-11)	75-69-4	MKCJ8658	99%	2,000.7 μg/mL	+/- 112.3992

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

Solvent: P&T Methanol CAS # 67-56-1

Purity 99%

\_\_\_\_\_

**Column:** 60m x 0.25mm x 1.4μm Rtx-502.2 (cat.#10916)

Carrier Gas: helium-constant flow 2.0 mL/min.

Temp. Program: 40°C (hold 6 min.) to 100°C

@ 6°C/min. Inj. Temp: 200°C

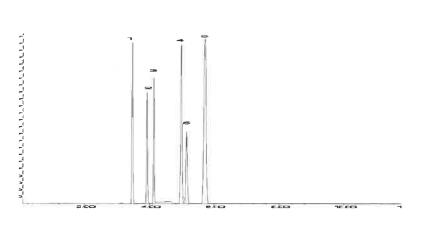
Det. Temp: 250°C

Det. Type:

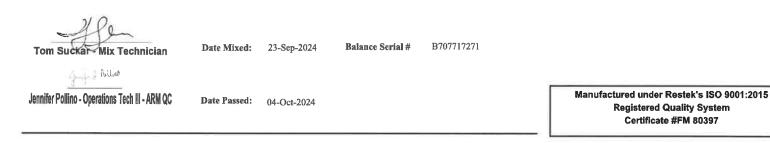
MSD Split Vent:

Split ratio 10:1 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.



### **General Certified Reference Material Notes**

### **Expiration Notes:**

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

### **Purity Notes:**

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

### **Certified Uncertainty Value Notes:**

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

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

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

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

### Manufacturing Notes:

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

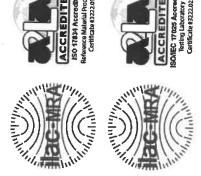
- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability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



**CERTIFIED REFERENCE MATERIAL** 



chromatographic plus



www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the minimum of the manufactor listed isted. the qualitative and/or qua

	and decimants analog data	and youndaryo and or youndaryo determination of the analyte(s) in
Catalog No. :	30625 L	Lot No.: A0219189
Description :	OLC 3.2 VOA Deuterated Monitoring Compounds	ounds
	OLC 3.2 VOA Ketone Deuterated Monitoring Compounds 500µg/mL, Deuterium Oxide, 1mL/ampul	J Compounds 500µg/mL,
Container Size :	2 mL	Pkg Amt: > 1 mL
Expiration Date :	May 31, 2026	Storage: 10°C or colder

ŝ
ш
)
1
<
>
٥
ш
-
ш
F
22
Ξ.
U U

Ambient

Ship:

Order		Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Uncertainty *
1	2-Butanone-d5						(23/0 C.L.; N=Z)
			24313-30-0 HJ-279	HJ-279	%66	99% 504.0 μg/mL	+/- 17.5357
2	2-Hexanone-d5		4840-82-8 I-500	I-500	%66	504.0 us/mT +/- 17 5357	+/- 17 5357

Solvent: Deuterium oxide CAS# 7789-20-0 Purity 99%

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

(

			20 25 30	conditions chosen for product should be adjusted for your		Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397	
	c*		5 10 15 Minutes	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.	24 Balance Serial # B345965662	4	
				This chro acceptan specific ir	Date Mixed: 15-Nov-2024	Date Passed: 19-Nov-2024	
<b>Column:</b> 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carriar Gae	Varrier Gas: hydrogen-constant pressure 11.0 psi. <b>Temp. Program:</b> 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) <b>Inj. Temp:</b> 200°C	Det. Temp: 250°C Det. Type: FID Split Vent: 40 m//min Loi V.OI	price and a second s		$\mathcal{W} \circ \mathcal{E}$ Aaron Enyart - Operations Tech I	Dillan Murphy - Operations Technician I	

Notes
Material
Reference
Certified
General

## Expiration Notes:

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

### **Purity Notes:**

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

# Certified Uncertainty Value Notes:

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

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

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

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

# Manufacturing Notes:

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

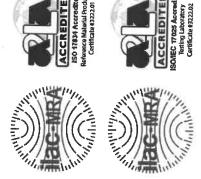
- environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through ordered item. Additionally, Restek sells DMDCS for the purpose of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



**CERTIFIED REFERENCE MATERIAL** 



chromatographic plus



www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the minimum of the manufactor listed isted. the qualitative and/or qua

	and decimants analog data	and youndaryo and or youndaryo determination of the analyte(s) in
Catalog No. :	30625 L	Lot No.: A0219189
Description :	OLC 3.2 VOA Deuterated Monitoring Compounds	ounds
	OLC 3.2 VOA Ketone Deuterated Monitoring Compounds 500µg/mL, Deuterium Oxide, 1mL/ampul	J Compounds 500µg/mL,
Container Size :	2 mL	Pkg Amt: > 1 mL
Expiration Date :	May 31, 2026	Storage: 10°C or colder

ŝ
ш
)
1
<
>
٥
ш
-
ш
F
22
Ξ.
U U

Ambient

Ship:

Order		Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Uncertainty *
1	2-Butanone-d5						(23/0 CIT: N=Z)
			24313-30-0 HJ-279	HJ-279	%66	99% 504.0 μg/mL	+/- 17.5357
2	2-Hexanone-d5		4840-82-8 I-500	I-500	%66	504.0 us/mT +/- 17 5357	+/- 17 5357

Solvent: Deuterium oxide CAS# 7789-20-0 Purity 99%

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

(

			20 25 30	conditions chosen for product should be adjusted for your		Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397	
	ct		5 10 15 Minutes	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.	24 Balance Serial # B345965662		
				This chro acceptan specific ir	Date Mixed: 15-Nov-2024	Date Passed: 19-Nov-2024	
Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat#10910) Carrier Gas	hydrogen-constant pressure 11.0 psi. <b>Temp. Program:</b> 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) <b>Inj. Temp:</b> 200°C	Det. Temp: 250°C Det. Type: FID Split Vent: 40 ml/min Loi Vol	ht		$\mathcal{W} \circ \mathcal{E}$ Aaron Enyart - Operations Tech I	Dillan Murphy - Operations Technician I	

Notes
Material
Reference
Certified
General

## Expiration Notes:

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

### **Purity Notes:**

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

# Certified Uncertainty Value Notes:

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

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

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

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

# Manufacturing Notes:

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

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

Inc.		
dards,		andards.com
Stan	131	este
solute	00-368-113	w.absolut
AL	800	WM

Certified Reference Material CRM



Solvent(s): Lot# Solvent(s): Lot# Methanol EC592-US Formulated 5E-05 Balance Uncertainty 0.001 Flask Uncertainty 0.001 Flask Uncertainty Duriv Thoostrainty Total Annual Annual Annual Lineared	Nominal Purry Uncertainty Larget Actual Actual Uncertainty (Solvent Safety Info. On Attached pg.) Conc (ug/mL) (% Purity Weight(g) Weight(g) Conc (ug/mL) (+/) (ug/mL) CAS# 0SHA PEL (TWA) LD50 2000 98.8 0.2 0.10129 0.10187 2011.5 8.4 95-63-6 N/A ori-rat 5g/kg	45.69     Abundance     Scan 2758 (45.670 min): [BSB2/70475.D       45.69     1800000     105       1400000     1400000       1200000     1200       800000     120       800000     120       800000     120       800000     120       800000     120       800000     120       800000     120       800000     120	50.00 55.00 50.00 km with weights trained from gravimetric and volumetric measure balances that are calibrated with weights trained under appropriate stored with carse stated.
<u>31491</u> 063022 1,2,4-Trimethylbenzene 063027 Refrigerate (4 °C) 2000 6UTB d diluted to (mL): 50.0	RM# Number Co 475 WXBC9778V	TIC: [BSB2]70475.D	<ul> <li>The certified value is the concentration calcula</li> <li>The certified value is the concentration calcula</li> <li>Standards are prepared gravimetrically using</li> <li>Slandards are certified (4/-) 0.5% of the stated</li> <li>All Standards, after opening ampule, should b</li> <li>Uncertainty Reference: Taylor, B.N. and Kuy</li> </ul>
CERTIFIED WEIGHT REPORT         Part Number:         Lot Number:         Lot Number:       063022         Description:       1,2,4-Trim         1,2,4-Trim       063027         Recommended Storage:       Refrigerate         Nominal Concentration ( <i>Jug/mL</i> ):       2000         NiST Test ID#:       6UTB         Weight(s) shown below were combined and diluted to (mL):	Compound 11,2,4-Trimethylbenzene	Temp. = 220°C. Analysis performed by Candice Warren.         TIC: [BSB2]70475.D         Abundance         5500000         5000000         4500000         3500000         3500000         3500000         3500000         2500000         2500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         1500000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000         5000000	

1 of 1

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis

Avantor



Material No.: 9077-02 Batch No.: 22L0562016 Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25 Revision No.: 0

### Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrable Base (µeq/g)	≤ <b>0.</b> 10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

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

James Techie

Jamie Ethier Vice President Global Quality