

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

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# **Prep Standard - Chemical Standard Summary**

Order	ID:	P3845

Test: VOCMS Group1

Prepbatch ID:

Sequence ID/Qc Batch ID: VN091024,vn091124,

#### Standard ID:

VP126666,VP126667,VP128290,VP128298,VP128632,VP128762,VP128764,VP128766,VP128767,VP128768,VP129195,VP129517,VP129519,VP129855,VP129858,VP129860,VP130106,VP130211,VP130212,VP130213,VP130225,VP130226,VP130230,VP130231,VP130232,VP130233,VP130234,VP130235,VP130236,VP130256,VP130257,VP130258,

#### Chemical ID:

V12794, V12798, V12966, V13308, V13390, V13444, V13448, V13462, V13463, V13581, V13708, V13800, V13801, V13819, V13915, V13916, V13952, V13953, V13964, V14016, V14017, V14096, V14103, V14104, V14124, V14140, V14141, V14143, V14145, V14147, V14148, V14169, V14170, V14202, V14207, V14219, V14288, V14467, V14468, V14469, V14472, V14473, W 3112,





# **VOC STANDARD PREPARATION LOG**

Recipe ID 617	NAME 8260 Surrogate, 400PPM	<u>NO.</u> VP126666	Prep Date 03/19/2024	Expiration Date 09/19/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 03/28/2024

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
1738	8260 surrogate 20 ppm	<u>VP126667</u>	03/19/2024	09/19/2024	Semsettin Yesilyurt	None	None	03/28/2024

**FROM** 0.04000ml of V13708 + 49.98000ml of V14141 = Final Quantity: 50.000 ml





# **VOC STANDARD PREPARATION LOG**

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
218	BFB, 25PPM	<u>VP128290</u>	06/10/2024	11/23/2024	Semsettin Yesilyurt	None	None	06/12/2024

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
247	8260 Internal Standard, 250PPM	<u>VP128298</u>	06/10/2024	11/23/2024	Semsettin Yesilyurt	None	None	06/12/2024

**FROM** 0.10000ml of V14288 + 9.90000ml of V14148 = Final Quantity: 10.000 ml





# **VOC STANDARD PREPARATION LOG**

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
1817	8260 Working Std(2-CVE)-SS, 800ppm	<u>VP128632</u>	06/25/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

Recipe ID	NAME.	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
1810	8260 Working Std(2-CVE)-800ppm	<u>VP128762</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

FROM 0.50000ml of V12798 + 1.50000ml of V12794 + 23.00000ml of V14147 = Final Quantity: 25.000 ml





# **VOC STANDARD PREPARATION LOG**

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
1812	8260 Working Std(2-CVE)-100ppm	<u>VP128764</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

Recipe ID	NAME.	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
719	8260 Working STD (BCM)-First source, 400PPM	<u>VP128766</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

FROM 1.50000ml of V13462 + 1.50000ml of V13463 + 12.00000ml of V14147 = Final Quantity: 15.000 ml





# **VOC STANDARD PREPARATION LOG**

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
	8260 Working STD (BCM)-First source, 100PPM	<u>VP128767</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

<b>FROM</b>	0.50000ml of V13463 + 9.50000ml of V14147	= Final Quantity: 10.000 ml
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Recipe ID	NAME.	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
253	8260 Working STD (BCM)-First source, 20PPM	<u>VP128768</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

**FROM** 0.10000ml of V13463 + 9.90000ml of V14147 = Final Quantity: 10.000 ml



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#### **VOC STANDARD PREPARATION LOG**

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
262	8260 Working STD (BCM)-Second source, 100PPM	<u>VP129195</u>	07/22/2024	01/22/2025	Semsettin Yesilyurt	None	None	07/26/2024

**FROM** 1.00000ml of V12966 + 9.00000ml of V14143 = Final Quantity: 10.000 ml

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
257	8260 Calibration Working STD Mix-First source, 160PPM	<u>VP129517</u>	08/05/2024	09/14/2024	Semsettin Yesilyurt	None	None	08/08/2024

**FROM** 

 $0.40000 ml \ of \ V13444 + 1.00000 ml \ of \ V13800 + 1.00000 ml \ of \ V13801 + 1.00000 ml \ of \ V13952 + 1.00000 ml \ of \ V13953 + 1.000000 ml \ of \ V13953 + 1.00000 ml \ of \ V13953 + 1.000000 ml \ of \ V13953 + 1.000000 ml \ of \ V13953 + 1.00000 ml \ of \ V13953 + 1.00000 ml \ of$ 

1.00000ml of V14016 + 1.00000ml of V14017 + 1.00000ml of V14103 + 1.00000ml of V14104 + 1.00000ml of V14169 +

 $1.00000 ml \ of \ V14170 + 1.00000 ml \ of \ V14219 + 1.50000 ml \ of \ V14202 + 1.50000 ml \ of \ V14207 + 10.60000 ml \ of \ V14143 \ = Final \ Order \ Or$ 

Quantity: 25.000 ml



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#### **VOC STANDARD PREPARATION LOG**

Recipe ID	NAME_	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
245	8260 Calibration Working STD Mix-First source, 20PPM	<u>VP129519</u>	08/05/2024	09/14/2024	Semsettin Yesilyurt	None	None	08/08/2024

**FROM** 17.50000ml of V14143 + 2.50000ml of VP129517 = Final Quantity: 20.000 ml

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
263	8260 Working STD (Acrolein)-Second source,	<u>VP129855</u>	08/21/2024	09/14/2024	Semsettin Yesilyurt	None	None	08/24/2024

FROM 0.60000ml of V14473 + 1.00000ml of V14472 + 8.40000ml of V14140 = Final Quantity: 10.000 ml





Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
51	8260 Working STD (Acrolein) -first source, 800PPM	<u>VP129858</u>	08/21/2024	09/15/2024	Semsettin Yesilyurt	None	None	08/24/2024

FROM 1.00000ml of V14469 + 1.50000ml of V14467 + 1.50000ml of V14468 + 21.00000ml of V14140 = Final Quantity: 25.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
180	8260 Working STD (Acrolein)-First source, 100PPM	<u>VP129860</u>	08/21/2024	09/15/2024	Semsettin Yesilyurt	None	None	08/24/2024

FROM 17.25000ml of V14140 + 2.50000ml of VP129858 = Final Quantity: 20.000 ml



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#### **VOC STANDARD PREPARATION LOG**

259 8260 Calibration Working STD	Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
	259		<u>VP130106</u>	09/04/2024	10/19/2024		None	None	09/11/2024

 $\begin{array}{c} \textbf{FROM} \\ \hline 0.16000 \text{ml of V13448} + 0.60000 \text{ml of V13915} + 0.80000 \text{ml of V13308} + 0.80000 \text{ml of V13819} + 0.80000 \text{ml of V13964} + \\ \hline 0.80000 \text{ml of V14096} + 0.80000 \text{ml of V14124} + 1.00000 \text{ml of V13916} + 4.24000 \text{ml of V14145} & = \text{Final Quantity: } 10.000 \text{ ml} \\ \hline \end{array}$ 

Recipe				Expiration	<u>Prepared</u>			Supervised By
<u>ID</u> 589	NAME BFB TUNE CHECK	NO.	Prep Date 09/10/2024		By	ScaleID None	PipettelD Nana	Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP130211</u>	09/10/2024	09/11/2024	John Carlone	None	None	09/11/2024

**FROM** 39.98400ml of W3112 + 0.01600ml of VP128290 = Final Quantity: 40.000 ml



**FROM** 

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#### **VOC STANDARD PREPARATION LOG**

620 50 PPB CCC, 8260-Water VP130212 09/10/2024 09/11/2024 John Carlone None None	Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
I I I I I I I I I I I I I I I I I I I	620	50 PPB CCC, 8260-Water	<u>VP130212</u>	09/10/2024	09/11/2024	John Carlone	None	None	09/11/2024

39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of VP129762 + 0.01250ml of VP129517 + 0.01250ml of VP129858 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
620	50 PPB CCC, 8260-Water	<u>VP130213</u>	09/10/2024	09/11/2024	John Carlone	None	None	
								09/11/2024

FROM 39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of VP128762 + 0.01250ml of VP129517 + 0.01250ml of VP129858 = Final Quantity: 40.000 ml





Recipe ID	NAME.	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By  Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP130225</u>	09/10/2024	09/11/2024	John Carlone	None	None	09/11/2024

**FROM** 39.98400ml of W3112 + 0.01600ml of VP128290 = Final Quantity: 40.000 ml

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
620	50 PPB CCC, 8260-Water	<u>VP130226</u>	09/10/2024	09/11/2024	John Carlone	None	None	09/11/2024

FROM 39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of VP128762 + 0.01250ml of VP129517 + 0.01250ml of VP129858 = Final Quantity: 40.000 ml





Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
334	1 PPB ICC, 8260-Water	<u>VP130230</u>	09/10/2024	09/11/2024	John Carlone	None	None	
								09/11/2024

FROM 39.98200ml of W3112 + 0.00200ml of VP126667 + 0.00200ml of VP128764 + 0.00200ml of VP128768 + 0.00200ml of VP129519 + 0.00200ml of VP129860 + 0.00800ml of VP128298 = Final Quantity: 40.000 ml

Recipe				<b>Expiration</b>	<u>Prepared</u>			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
335	5 PPB ICC, 8260-Water	<u>VP130231</u>	09/10/2024	09/11/2024	John Carlone	None	None	
								09/11/2024

FROM 39.94200ml of W3112 + 0.00800ml of VP128298 + 0.01000ml of VP126667 + 0.01000ml of VP128764 + 0.01000ml of VP128768 + 0.01000ml of VP129519 + 0.01000ml of VP129860 = Final Quantity: 40.000 ml





Recipe ID 336	NAME 10 PPB ICC, 8260-Water	NO. VP130232	Prep Date 09/10/2024	Expiration Date 09/11/2024	Prepared By  John Carlone	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 09/11/2024
FROM 39.92700ml of W3112 + 0.00100ml of VP126666 + 0.00400ml of VP128767 + 0.00800ml of VP128298 + 0.02000ml of								

39.92700ml of W3112 + 0.00100ml of VP126666 + 0.00400ml of VP128767 + 0.00800ml of VP128298 + 0.02000ml of VP128764 + 0.02000ml of VP129519 + 0.02000ml of VP129860 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
337	20 PPB ICC, 8260-Water	<u>VP130233</u>	09/10/2024	09/11/2024	John Carlone	None	None	
								09/11/2024

**FROM** 39.97000ml of W3112 + 0.00200ml of VP126666 + 0.00200ml of VP128766 + 0.00500ml of VP128762 + 0.00500ml of VP129517 + 0.00500ml of VP129858 + 0.00800ml of VP128298 = Final Quantity: 40.000 ml





Recipe	NAME	NO	Dron Data	Expiration	<u>Prepared</u>	SaalalD	DinettelD	Supervised By
<u>ID</u> 380	NAME 50 PPB ICC. 8260-Water	NO.	Prep Date 09/10/2024	<u>Date</u> 09/11/2024	<u>By</u> John Carlone	<u>ScaleID</u> None	PipetteID None	Mahesh Dadoda
300	30 1 1 B 100, 0200-Water	<u>VI 130234</u>	09/10/2024	09/11/2024	John Canone	None	None	09/11/2024
FROM 39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of								

39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of VP128762 + 0.01250ml of VP129517 + 0.01250ml of VP129858 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
381	100 PPB ICC, 8260-Water	<u>VP130235</u>	09/10/2024	09/11/2024	John Carlone	None	None	
								09/11/2024

**FROM** 39.89700ml of W3112 + 0.00800ml of VP128298 + 0.01000ml of VP126666 + 0.01000ml of VP128766 + 0.02500ml of VP128762 + 0.02500ml of VP129517 + 0.02500ml of VP129858 = Final Quantity: 40.000 ml





**FROM** 

**VOC STANDARD PREPARATION LOG** 

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
385	50 PPB ICV, 8260-Water	<u>VP130236</u>	09/10/2024	09/11/2024	John Carlone	None	None	00/44/0004
								09/11/2024

39.92950ml of W3112 + 0.00500ml of VP126666 + 0.00800ml of VP128298 + 0.01250ml of VP128632 + 0.01250ml of VP129855 + 0.01250ml of VP130106 + 0.02000ml of VP129195 = Final Quantity: 40.000 ml

Recipe				<b>Expiration</b>	<u>Prepared</u>			Supervised By
<u>ID</u>	NAME	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP130256</u>	09/11/2024	09/12/2024	John Carlone	None	None	
								09/19/2024

**FROM** 39.98400ml of W3112 + 0.01600ml of VP128290 = Final Quantity: 40.000 ml





620 50 PPB CCC, 8260-Water VP130257 09/11/2024 09/12/2024 John Carlone None None 09/19/2024	Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
	620	50 PPB CCC, 8260-Water	<u>VP130257</u>	09/11/2024	09/12/2024	John Carlone	None	None	09/19/2024

FROM 39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of VP128762 + 0.01250ml of VP129517 + 0.01250ml of VP129858 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
620	50 PPB CCC, 8260-Water	<u>VP130258</u>	09/11/2024	09/12/2024	John Carlone	None	None	
								09/19/2024

FROM 39.94450ml of W3112 + 0.00500ml of VP126666 + 0.00500ml of VP128766 + 0.00800ml of VP128298 + 0.01250ml of VP128762 + 0.01250ml of VP129517 + 0.01250ml of VP129858 = Final Quantity: 40.000 ml



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	121321	12/13/2024	06/25/2024 / SAM	03/30/2022 / SAM	V12794
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	121321	12/13/2024	06/25/2024 / SAM	03/30/2022 / SAM	V12798
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	70046 / Bromochloromethane Std. sol/methanol 1000ppm	070122	01/22/2025	07/22/2024 / SAM	07/06/2022 / SAM	V12966
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	112921	11/29/2024	09/04/2024 / SAM	11/16/2022 / SAM	V13308
			Expiration	Date Opened /	Received Date /	Chemtech
Supplier	ItemCode / ItemName	Lot #	Date	Opened By	Received By	Lot #
Supplier Restek	ItemCode / ItemName  30067 / BFB tuneing solution	Lot # A0191805	_	-	01/13/2023 / SAM	Lot # V13390
	30067 / BFB tuneing		Date	Opened By 12/08/2023 /	01/13/2023 /	



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0191703			01/23/2023 / SAM	V13448
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	01/01/2025	07/01/2024 / SAM	01/27/2023 / SAM	V13462
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	01/01/2025	07/01/2024 / SAM	01/27/2023 / SAM	V13463
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	111722	12/25/2024	06/25/2024 / SAM	01/30/2023 / SAM	V13581
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2]	A0196865	09/19/2024	03/19/2024 / SAM	04/12/2023 / SAM	V13708
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	01/30/2025	07/30/2024 / SAM	05/31/2023 / SAM	V13800



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	12/28/2024	06/28/2024 / SAM	05/31/2023 / SAM	V13801
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	A0197644	03/03/2025	09/03/2024 / SAM	05/31/2023 / SAM	V13819
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	01/19/2025	07/19/2024 / SAM	07/24/2023 / SAM	V13915
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	03/03/2025	09/03/2024 / SAM	07/24/2023 / SAM	V13916
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0196115	09/30/2024	06/14/2024 / SAM	09/25/2023 / SAM	V13952
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0196115	09/30/2024	06/14/2024 / SAM	09/25/2023 / SAM	V13953



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0199224	12/31/2024 09/04/2024 / 09/25/2023 SAM SAM		09/25/2023 / SAM	V13964
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	12/14/2024	06/14/2024 / SAM	11/22/2023 / SAM	V14016
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	12/14/2024	06/14/2024 / SAM	11/22/2023 / SAM	V14017
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205177	03/04/2025	09/04/2024 / SAM	12/22/2023 / SAM	V14096
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205179	12/14/2024	06/14/2024 / SAM	12/22/2023 / SAM	V14103
Supplier	ItemCode / ItemName	Lot #	Expiration	Date Opened /	Received Date /	Chemtech
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205179	<b>Date</b> 12/14/2024	Opened By 06/14/2024 / SAM	12/22/2023 / SAM	Lot # V14104



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	011624	03/04/2025	09/04/2024 / SAM	01/17/2024 / SAM	V14124
Supplier	ItemCode / ItemName	Lot #	Expiration Date Opened		Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	02/16/2025	08/16/2024 / SAM	02/06/2024 / SAM	V14140
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)	22L0562016	09/19/2024	03/19/2024 / SAM	02/06/2024 / SAM	V14141
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)	22L0562016	01/22/2025	07/22/2024 / SAM	02/06/2024 / SAM	V14143
		Lot #	Expiration	Date Opened /	Received Date /	Chemtech Lot #
Supplier	ItemCode / ItemName	Lot #	Date	Opened By	Received By	LOT #
Supplier Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	02/28/2025	08/29/2024 / SAM	02/06/2024 / SAM	V14145
	BA9077-02 / Methanol,			08/29/2024 /	02/06/2024 /	



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)	22L0562016	11/23/2024	05/23/2024 / pedro	02/06/2024 / SAM	V14148
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624 12/14/2024 0		06/14/2024 / SAM	02/20/2024 / SAM	V14169
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624	12/14/2024	06/14/2024 / SAM	02/20/2024 / SAM	V14170
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	12/25/2024	06/25/2024 / SAM	02/28/2024 / SAM	V14202
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	A0200785	12/25/2024	06/25/2024 / SAM	02/28/2024 / SAM	V14207
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	A0200785	12/25/2024	06/25/2024 / SAM	02/28/2024 / SAM	V14219



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	A0210184	06/10/2025	06/10/2024 / SAM	04/15/2024 / SAM	V14288
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	081524	09/15/2024	08/16/2024 / SAM	08/16/2024 / SAM	V14467
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	081524	09/15/2024	08/16/2024 / SAM	08/16/2024 / SAM	V14468
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute	91980 / Acrolin Std (Min =	081524	09/15/2024	08/16/2024 /	08/16/2024 /	V14469
Standards, Inc.	5)			SAM	SAM	V 14409
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	SAM  Received Date / Received By	Chemtech Lot #
	<u>                                     </u>	Lot # 081424	•	Date Opened /	Received Date /	Chemtech
Supplier  Absolute	ItemCode / ItemName 91980 / Acrolin Std (Min =		Date	Date Opened / Opened By 08/16/2024 /	Received Date / Received By	Chemtech Lot #



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 / lwona	07/03/2024 / lwona	W3112

# 71 Certified Reference Material CRM



TIC: 95319.D

#### 1511-885-008 Absolute Standards, Inc.

www.absolutestandards.com

Abundance

T) CV2# O2HV bET (LNV) FD20	Conc (µg/mL) (++-) (µg/mL	Weight(g)	(g)trigisW	Purity	(%)	Conc (µg/mL)	Number	KM#	Compound
(	Expanded Actual Discretainty	Actual	Target	Uncertainty	Purity	IsnimoM	101		
				Flask Uncertainty	150.0	100.0	ed to (mL):	tulib bas b	Weight(s) shown below were combined
Jedu Jean 10162	Reviewed		J	gaistroot I sonsissi	90-39		738110 Refrigerate ( beinsV BTU3	: ( : e	Expiration Date (Expiration Date (Storage Mount) Expiration (Mg/mL) (Mg/mL) (Mg/mL) (Mg/mL)
ted By: Preshant Chauftan	## Talumo1	Lot#	Solvent(s): Methanol	<b>3</b>			95319 Revised Add	:1	Part Number Lot Number Description
									RTIFIED WEIGHT REPORT

141	enaznadlydtem.stfeT-4,6,S,۱ ا	164	roqa	2000	26	2.0	0.21511	0.21522	0.1002	7.8	488-23-3	Y/N	orl-rat 6408mg/kg
10'	Tetrahydrofuran	980	SHBH8330	10000	6'66	S.0	1.00125	1.00200	3.70001	6.04	6-66-601	(H8/cm/gm062) mqq 0S	galvemozat ten-ho
.6	elininoiqor	346	1395468	20000	66	S.0	170S0.S	2.02150	8.7000S	6.18	107-12-0	Y/N	gAgmeE isn-ho
.8	Methyl tert-butyl ether (MTBE)	S09	21880	2000	66	S.0	0.20207	0.20227	2002.0	2.8	1634-04-4	AW	gMg4 tst-no
·Z	метhylcyclohexane	1627	Veelopahs	2000	66	S.0	70S0S.0	0.20230	2002.3	2.8	S-78-801	Y/N	orl-mus 2250mg/kg
'9	-lexachloroethane	166	12604HBV	2000	66	S.0	0.20207	0.20221	4.100S	S.8	1-27-78	(nbis)(H8/Em/gm01) mqq t	бжбш0.46 <del>)</del> бd6-µо
.6	ensxoid-4,1	EYE	03853KE	40000	66	S.0	4.04142	4.04213	0.70004	162.5	1-16-621	(nixis)(H8/Em/gm0e) mqq 3S	вметооте вит-но
.4	Oi-isopropyl ether (DIPE)	<b>Z86</b>	00412MX	2000	66	S.0	0.20207	0.20227	S00S.0	2.8	108-20-3	500 ppm (2100mg/m3/8H)	gAlgm0748 far-ho
3.	Cyclohexane	1053	28930	2000	66	S.0	0.20207	0.20222	S.100S	2.8	110-82-7	(H8/Em/gm0301) mqq 00E	phgm207S1 isi-ho
5.	1-Chlorobutane	1072	MKCM5711	2000	66'66	S.0	70005.0	0.20035	8.2002	1.8	£-69-601	Y/N	orl-rat 2670mg/kg
4	Acrylonitrile		4718CK	10000	66	S.0	1.01035	1.01080	\$.\$000f	9.04	1-61-701	AW	gx/gm 87 isi-ho

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 MIST (see above).
 Standards are certified (++).0.5% of the stated value, unless otherwise stated.

ent Result,"

		00'09	00.22	20,00	45.00	40.00	35.00	30.00	S2:00	20,00	15.00	10.00	o <amit< th=""></amit<>
Z9:15	£,2,3,4-Tetramethylbenzene			1					1		100		
46.44	Hexachloroethane			844	· ·				ellebrane and and and and and and and and and and	SH OF	13,57	į	200000
₽8.9Z	enexoiG-₽,1			2					24,85	T			
24.84	Methylcyclohexane									4554544	10 to		10000001
20.83	1-Chlorobutane			29,12						THE STATE OF	990		
82.02	Cyclohexane								8550000			ì	1200000
20.17	nsruìorbyderdeT				50.				2010		13,79	į	
18.53	elitinoiqorq						utes. Anal	· •	200		OL O		- 0000002
12.44	Di-isopropyl ether	-					00°C (8.75 Detect		Section 2	81,02		1	
67.E1	Acrylonitrile						irts miss mu		110.00000			Î	2200000
13,56	Methyl tert-butyl ether (MTBE)	X	OI mm25.0	X m08) I	nmn: Voco	SD-1: Colu	Hod GC6M	Met	040040004	52,8	7	f	200000
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	at and under appropriate laboratory conditions.		nbule, should	ns gninago r	afte , abrabne.				Per			doorah	

# Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



# Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number: 95317 Lot Number: 021624 Description; Universal VOA Megambs

69 components

Expiration Date: 021627 nended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 8UTB

Weight(s) shows below were combined and diluted to (mt )-

100.0 0.021 19-11-11

5E-05 Balance Uncertainty

Solvent(s): Methenoi EG359-USQ12 021624 DATE 021624 DATE

	ad and dilute	ad to (mL);	100.	.0 0.02	1 Flask Uncertain	edw										
Compound	(RMII) Part Numbe	Lot	Dp.	fritiel	iritial	Nominal Conc (µg/mL)	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information ent Safety info. On Atta	ched pg.)
	P det Petrope	R TRAFFILME	Pilited	ar vol. (m	C) Conc.(ug/ms.)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mi.)	Weight(g)	Weight(g)	Canc (µg/mL)	(+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
Acetonitrile	(0324)	021644	NA	NA.	NA.	2000	99.99	0.2	NA	0.20007	0.20020	2004.0			Decision of the Control of the Contr	
Allyl chloride (3-Chloropropene)	(0325)	102396	NA		NA.	2000	99	0.2	NA	0.20207	0.20020	2001.3	8.2	75-05-8 107-05-1	49 ppm (70mg/m3/6H)	orl-rat 2450
Carbon disulphide	(0060)	MKCR8581	1 NA	NA	NA	2000	99,99	0.2	NA	0.20007	0.20023	2001.6	8.1	75-15-0	1 ppm (3mg/m3/8H)	orl-ret 700
cis-1,4-Dichloro-2-butene	(1198)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058	0.21069	2001.1	B.5	1478-11-5	4 ppm (12mg/m3) (skin) N/A	ori-rat 1200
trans-1,4-Dichloro-2-butene	(0486)	MKBP60411		NA	NA	2000	96.5	0.2	NA.	0.20731	0.20748	2001.7	8.4	110-57-6	N/A	N/A N/A
Diethyl ether		1K18CAS000		NA	NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	80-29-7	N/A	N/A
Ethyl methacrylate	(0381)	06126PX	NA.	NA	NA	2000	99	0.2	NA	0.20207	0.20230	2002.3	8.2	97-63-2	NA	orl-ret 1480
lodomethane	(0489)	SH8F8718\		NA	NA	2000	99.5	0.2	NA	0.20106	0.20121	2001.5	8.2	74-88-4	6 ppm(28mg/m3/8H)(skin)	
2-Methyl-1-propanol Methacrylonitrile	(0445)	15241EB		NA	NA	2000	99.5	0.2	NA.	0.20106	0.20120	2001.4	8.1	78-83-1	60 ppm (150mg/m3/8H)	ori-rat 2460
Methyl acrylate	(0442)	00427ET	NA	NA	NA	2000	99	0.2	NA.	0.20207	0.20221	2001.4	8.2	126-98-7	1 ppm (3mg/m3/8H)(skin)	orl-rat 120r
Methyl methacrylate		SHBK0679 MKBW5137		NA NA	NA NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	ori-ret 277n
Nitrobenzene	(0228)	01213TV	NA.	NA NA	NA NA	2000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	100 ppm (410mg/m/3/8H)	ori-rat 7872
2-Nilropropane	(0461)	14002JX	NA	NA	NA.	2000	99	0.2	NA NA	0.20207	0.20220	2001.3	8.2	96-95-3	1 ppm (5mg/m3/8H)(skin)	ori-rat 780n
Pentachloroethane	(0450)	HGA01	NA	NA	NA.	2000	98	0.2	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35/mg/m3/6H)	orl-rat 720r
1,1,2-Trichiorotriffuoroethane	(0474)	18930	NA	NA	NA.	2000	99	0.2	NA.	0.20413	0.20430	2001.8	8.3	76-01-7	N/A	N/A
Bromodichloromethane	35171	101623	0.05	5.00	40001.7	2000	NA	NA.	0.017	NA NA	NA NA	2001.8 1999.6	8,2 22.9	78-13-1	1000 ppm (7600mg/m3/6H)	
Dibromochioromethane	35171	101623	0.05	6.00	40002.1	2000	NA	NA	0.017	NA NA	NA.	1999.6	23.0	75-27-4 124-48-1	N/A	orl-ret 916r
cis-1,2-Dichloroethene	35171	101623	9.05	5.00	40003.1	2000	NA	NA	0.017	NA	NA NA	1999.7	22.9	158-59-2	N/A	orl-rat 646r
rans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA.	1999.6	23.0	156-60-5	N/A	N/A
Methylene chlorida	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA.	1999.6	22.9	75-09-2	500 ppm	ort-rat 1235
1,1-Dichloroethene	32251	102023	0.10	10,00	20001.6	2000	NA	NA	0.042	NA	NA.	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat 820r ori-rat 200r
Bromeform	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	ori-rat 200r
Sarbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	58-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350
Chloroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-68-3	50 ppm (240mg/m3) (CL)	orf-ret 908r
Dibromomethane	95321	020724	0.10	10.00	20002.9	2000	NA	NA	0.042	NA	NA	1999.8	20.5	74-95-3	N/A	orl-ret 106r
,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	orl-rat 725m
,2-Dichloropropane ekrachloroethene	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	NA	NA
,1,1-Trichloroethane	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA	NA	2019.6	20.6	127-18-4	25 ppm (170mg/m3/8H)(final)	orl-rat 2629
2-Dibromo-3-chioropropane	95321 35161	020724	0.10	10.00	20003.0	2000	NA	NA	0.042	NA	NA	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/8H)	orl-rat 10300
2-Dibromoethane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA NA	2000.3	22.9	96-12-8	0.001 ppm	ori-rat 170n
2-Dichloroethane	35161	112322	0.08	5.00	40024.8	2000	NA	NA NA	0.017	NA	NA	2000.7	22.9	106-93-4	20 ppm (8H)	orf-rat 108m
,2-Dichloropropene	35161	112322	0.05	5.00	40051.0	2000	NA NA	NA NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670m
3-Dichloropropane	35161	112322	0.05	5.00	40005.9	2000	NA	NA.	0.017	NA NA	NA NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/9H)	ori-rat 1947s
1-Dichloropropene	35161	112322	0.05	5.00	40012.1	2000	NA	NA NA	0.017	NA NA	NA NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600
s-1,3-Dichloropropena	35161	112322	0.05	5.00	40010.0	2000	NA	NA	0.017	NA.	NA NA	2000.1	29.7 23.0 1	563-56-6 0061-01-5	N/A	N/A
ans-1,3-Dichloropropene	35161	112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4		0061-01-5	N/A	N/A
exachloro-1,3-butadiene	35181	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7	87-68-3	N/A 0.02 ppm (0.24mg/m3/6H)	N/A
1,1,2-Tetrachkoroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1	22.9	630-20-6	N/A	ori-rat 62m
1,2,2-Tetrachioroethane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	79-34-5	5 ppm (35mg/m3/9H)(aldn)	orl-rat 670m
1,2-Trichloroethane	35161	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	ori-rat 836m
ichloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/9H)	orl-mus 2402
2,3-Trichloropropane Inzene	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4	10 ppm (60mg/m3/8H)	ori-rat 149.6r
omobenzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894n
Butyl benzene	36162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-86-1	N/A	orl-rat 2699m
nyi benzene	35162 35162	060823 050823	0.05	5.00	40003.8	2000	NA	NA	0.017	NA	NA	1999.7		104-51-8	N/A	N/A
sopropyl toluene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		100-41-4	190 ppm (435mg/m3/8H)	orl-rat>2000
phthalene	35162	050823	0.05	5.00	40005.8 40006.2	2000	NA	NA NA	0.017	NA	NA .	1999.8	22.9	99-87-6	N/A	orl-rat 4750n
rrene	35162	050823	0.05	5.00	40004.8		NA NA	NA NA	0.017	NA	NA.	1999.8		91-20-3	10 ppm (50mg/m3/8H)	orl-rad 490m
UBDB	35162	050823	0.05	5.00	40006.2		NA	NA.	0.017	NA	NA	1999.7		00-42-5	100 ppm	orl-rat 5000m
,3-Trichlorobenzene	35162	050823	0.05	5.00	40003.1		NA.	NA.	0.017	NA NA	NA NA	1999.8		08-88-3	200 ppm	orl-rat 5000m
,4-Trichlorobenzene		050823	0.05	5.00	40008.8		NA	NA NA	0.017	NA	NA NA	1999.7		87-61-6	N/A	lpr-mus 1390r
,4-Trimethylbenzene	35162	050823	0.05	5.00	40001.8		NA	NA	0.017	NA NA	NA NA	1999.6		20-82-1	5 ppm (CL) (40mg/m3)	ori-rat 756m
,5-Trimethylbenzene	35162	050823	0.05	5.00	40006.7		NA	NA	0.017	NA	NA NA	1999.6	-	95-63-6 08-67-8	N/A N/A	ort-rat 5g/
Cylene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.6		08-38-3		orl-rat 5000m
-Butyl benzene			0.05	5.00	40001.2		NA	NA	0.017	NA	NA	1999.6		98-06-6	100 ppm (435mg/m3/8H) N/A	orl-rat 5g/
			0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA	1999.6		35-98-8	N/A	
	35163		0.05		40003.8	2000	NA	NA	0.017	NA	NA	1999.7		08-90-7	75 ppm (350mg/m3/8H)	pri-rat 2240m
orobenzene		101923	0.05		40000.3		NA	NA	0.017	NA	NA	1999.5		95-49-8	50 ppm (250mg/m3/8H)	orl-rat 3900m
orobenzene hiorotoluene				E 00	40003.3	2000	NA	NA	0.017	NA	NA	1999.7		06-43-4	N/A	orl-rat 2100m
orabenzene hlorotoluene hlorotoluene	35163	101923							0.047	814	NA.					
lorabenzene Shlorataluena Shlorataluene -Dichiorabenzene	35163 35163	101923 101923	0.05	5.00	40003.8		NA	NA	0.017	NA	PUN	1999.7	22.9	95-50-1	50 ppm (300ms/m3) (CL)	orl-rad 500mm
lorabenzene Zhlorotoluena Zhlorotoluena -Dichlorobenzene -Diahlorobenzene	35163 35163 35163	101923 101923 101923	0.05 0.05	5.00 5.00	40003.8 40001.7	2000	NA	NA	0.017	NA NA	NA	1999.7		95-50-1 41-73-1	50 ppm (300mg/m3) (CL) N/A	
lorobenzene Zhlorotoluene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene	35163 35163 35163	101923 101923 101923 101923	0.05 0.05 0.08	5.00 5.00 5.00	40003.8 40001.7 40001.8	2000	NA NA	NA NA	0.017 0.017	NA NA			23.0 5			pr-mus 1062rr
lorobenzene Ahlorotokuena Hakrotokuena -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene	35163 35163 35163 35163 35163	101923 101923 101923 101923 101923	0.05 0.05 0.08 0.05	5.00 5.00 5.00 5.00	40003.8 40001.7 40001.8 40000.8	2000   2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6	23.0 5 22.9 1	41-73-1	N/A	ori-rat 500mg
-Dichloroberizene -Dichloroberizene propylbenizene ropylbenizene	35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923 101923	0.05 0.05 0.08 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40003.8 40001.7 40001.8	2000   2000   2000   2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	23.0 5 22.9 1 22.9 9	41-73-1 06-46-7	N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/6H)	orl-rat 500mg lpr-mus 1062m orl-rat 500mg orl-rat 1400mg orl-rat 6040mg

<sup>\*</sup> The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.

\* Standards are prepared gravimetrically using behances that are calibrated with weights truccable to NIST (one above).

\* Standards are certified (<>) 2.67 of the stated value, sudow otherwise stated.

\* All Standards, after opening anapule, should be stored with cape tight and under appropriate taboratory candillons.

\* Uncertainty Reference: Taylor, RA, and Raylor, C.E., "Calcibrations for Evaluating and Expressing the Uncertainty of NIST Measurement Result, NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

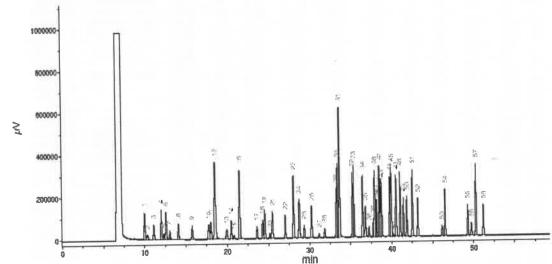
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

# Run 16, "P95317 L021624 [2000µg/mL in MeOH]"

Run Length: 60.00 min, 35998 points at 10 points/second. Created: Sat, Feb 17, 2024 at 8:56:46 AM. Sampled: Sequence "021624-GC5M1", Method "GC5-M1". Analyzed using Method "GC5-M1".

#### Comments

GC5-M1 Analysis by Candice Warren
Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness
Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min.,
Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min.
Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.),
Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C.
FID Signal = Edaq Channel 1
Standard injection = 0.5µL, Range=3



Penk #	Name	(min.)
1	Ether	9.97
2	1.1.2-Trichloro-1,2,2-trifluoroetherm	10.33
3	1,1-Dichlaroethene	11.10
4	Acetonitrila	12,00
5	Indomethane	12.31
6	Atlyl chforide	12.55
9	Carbon disulfide/Nathylene chloride	13,04
	trans-1,2-Dichloroethens	14.07
9	1.1-Dichloroethane	15.74
10	2,2-Dichlerograpane	17.70
3.3.	cis-1,2-Dichleroethene	19.60
52	Hethacrylonityke/Methyl ecrylete/Chloroform	10.45
13	Isobutanol/1,1,1-Trichlorosthans	19.91
14	1,1-Dichteropropené	20.46
15	Carbon tetrachionide	20.79
16	Benzens/1,2-Dicniproethane	21.49
17	Trichloroethene	21.58
10	1,2-Dichloropropene	24.28
19	Methyl methocrylate	24,52
20	Bromodichloromethana	25.13
21	Dibramamethene/2-Mitropropene	25.46
22	cis-1,3-Dichloropropens	27.02
23	Tosuane	26.05
24	Ethyl methacrylets/trans-1,3-Dichleropropens	28.73
25	L,1,2-Trichtoroet/sens	29.34
26	Tetrachloroethene/1,3-Dichloroprophis	20.24
27	Dibramochlaromettune	31,16
28	1,2-Dileamoethene	32.84
28	Chlorobenzenik	33.26
30	Ethyphensene/1,1,1,2-fetractionoetharie	23.40
31	m-Xytene/p-Xytene	33.86
32	o-Mylene	35.22
33	Styrene	35.30
34	Esopropyl benzane/Bremefank	36,48
35	cm-1,4-Dichlore-2-buttene	36.00
26	1,5,2,2-Terrachioroethane	37.23
37	1,2,3-Yrichipropropane	37.77
211	n-Propylipe-talene	37.92
39	trans-1,4-Dichloro-3-Butens	38.05
40	Bromobenzen4	38.14
-61	1,3,5-Trymethy-benzerse	30.62
42	2-Chlerospinenk	38,77
43	4-Chlorotoluerie	39.76
44	tert-Butythenzene	39,91
45	1,2,4-Trimetry/benzene	40.17
46	Pertachlomethane	40.57
47	sec-Butylbenzena	41.02
48	p-Isopropykolu4Ne	41.42
-19	1,3-Orchigrobensens	45.83
50	1,4-Dictiorobenzene	42.52
52	n-Butylbenzene 1.2-Dichlorobenzene	43.38
	1,2-Dightoropensene 1,2-Dightomo-3-chloropropene	46.12
53 54	%Etrobencane	46,48
		49.26
55	1,2,4-fitchtorobenzarie HersachSprobutadiens	49.72
56 57	Hatherstrounders	\$0.26
58	1,2,3-Trichlarobenzene	51.16
28	T's' T-10 Casta Contractor	

PO Box 5585 Hamden, CT 06518-0585

Phone: 203-281-2917 FAX: 203-281-2922

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC.

Emergency Telephone USA & CANADA

1-800-535-5053

Address

44 Rossotto Dr. Hamden CT, 06514 Emergency Telephone International Date Prepared/Revised

1-352-323-3500 January 1, 2023

Section II - Hazards Identification

GHS Classification In accordance with 29 CFR 1910 (OSHA HCS)

H225 H370 **Highly Flammable Liquid and Vapor** 

H301, 311, 331 Toxic if swallowed, skin contact, inhaled

P271

Cause damage to organs Use in ventilated area

H351 P280

Suspected of causing cancer

P302.332

If on skin, wash with soap and water

P305,351,338

Use gloves, eye protection/face shelld If in eyes, remove contacts, rinse with water





Signal Word: DANGER

Section III - Composition

Components (Specific Chemical Identity; Common Name(s)) Methanol

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area. If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

If inhaled

Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from

heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media

Protective equipment for fire

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Clean up

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - Physical/Chemical Characteristics

Methanol-SDS.xls

Page 1 of 2

Printed: 2/19/24

#### Absolute Standards Inc.

PO Box 5585 Hamden, CT 06518-0585 Phone: 203-281-2917 FAX: 203-281-2922

Boiling Point	65°C	Specific Gravity (H2O = 1)	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

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

# Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight. Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Materials to avoid Hazardous 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

IATA

Proper shipping name:

UN number: 1230 Class: 3 Packing group: II Methanol

Proper shipping name:

UN number: 1230 Class: 3 Packing group: 11

#### Section XV. REGULATORY INFORMATION

Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant OSHA Hazards 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. warrants that the chemical meets the specifications set forth on the label. 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.

# Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



# Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number: 95317 Lot Number: 021624 Description; Universal VOA Megambs

69 components

Expiration Date: 021627 nended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 8UTB

Weight(s) shows below were combined and diluted to (mt )-

100.0 0.021 19-11-11

5E-05 Balance Uncertainty

Solvent(s): Methenoi EG359-USQ12 021624 DATE 021624 DATE

	ad and dilute	ad to (mL);	100.	.0 0.02	1 Flask Uncertain	edw										
Compound	(RMII) Part Numbe	Lot	Dp.	fritiel	iritial	Nominal Conc (µg/mL)	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information ent Safety info. On Atta	ched pg.)
	P det Petrope	R TRAFFILME	Pilited	ar vol. (m	C) Conc.(ug/ms.)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mi.)	Weight(g)	Weight(g)	Canc (µg/mL)	(+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
Acetonitrile	(0324)	021644	NA	NA.	NA.	2000	99.99	0.2	NA	0.20007	0.20020	2004.0			Decision of the Control of the Contr	
Allyl chloride (3-Chloropropene)	(0325)	102396	NA		NA.	2000	99	0.2	NA	0.20207	0.20020	2001.3	8.2	75-05-8 107-05-1	49 ppm (70mg/m3/6H)	orl-rat 2450
Carbon disulphide	(0060)	MKCR8581	1 NA	NA	NA	2000	99,99	0.2	NA	0.20007	0.20023	2001.6	8.1	75-15-0	1 ppm (3mg/m3/8H)	orl-ret 700
cis-1,4-Dichloro-2-butene	(1198)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058	0.21069	2001.1	B.5	1478-11-5	4 ppm (12mg/m3) (skin) N/A	ori-rat 1200
trans-1,4-Dichloro-2-butene	(0486)	MKBP60411		NA	NA	2000	96.5	0.2	NA.	0.20731	0.20748	2001.7	8.4	110-57-6	N/A	N/A N/A
Diethyl ether		1K18CAS00		NA	NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	80-29-7	N/A	N/A
Ethyl methacrylate	(0381)	06126PX	NA.	NA	NA	2000	99	0.2	NA	0.20207	0.20230	2002.3	8.2	97-63-2	NA	orl-ret 1480
lodomethane	(0489)	SH8F8718\		NA	NA	2000	99.5	0.2	NA	0.20106	0.20121	2001.5	8.2	74-88-4	6 ppm(28mg/m3/8H)(skin)	
2-Methyl-1-propanol Methacrylonitrile	(0445)	15241EB		NA	NA	2000	99.5	0.2	NA.	0.20106	0.20120	2001.4	8.1	78-83-1	60 ppm (150mg/m3/8H)	ori-rat 2460
Methyl acrylate	(0442)	00427ET	NA	NA	NA	2000	99	0.2	NA.	0.20207	0.20221	2001.4	8.2	126-98-7	1 ppm (3mg/m3/8H)(skin)	orl-rat 120r
Methyl methacrylate		SHBK0679 MKBW5137		NA NA	NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	ori-ret 277n
Nitrobenzene	(0228)	01213TV	NA.	NA NA	NA NA	2000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	100 ppm (410mg/m/3/8H)	ori-rat 7872
2-Nilropropane	(0461)	14002JX	NA	NA	NA.	2000	99	0.2	NA NA	0.20207	0.20220	2001.3	8.2	96-95-3	1 ppm (5mg/m3/8H)(skin)	ori-rat 780n
Pentachloroethane	(0450)	HGA01	NA	NA	NA.	2000	98	0.2	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35/mg/m3/6H)	orl-rat 720r
1,1,2-Trichiorotriffuoroethane	(0474)	18930	NA	NA	NA.	2000	99	0.2	NA.	0.20413	0.20430	2001.8	8.3	76-01-7	N/A	N/A
Bromodichloromethane	35171	101623	0.05	5.00	40001.7	2000	NA	NA.	0.017	NA NA	NA NA	2001.8 1999.6	8,2 22.9	78-13-1	1000 ppm (7600mg/m3/6H)	
Dibromochioromethane	35171	101623	0.05	6.00	40002.1	2000	NA	NA	0.017	NA NA	NA.	1999.6	23.0	75-27-4 124-48-1	N/A	orl-ret 916r
cis-1,2-Dichloroethene	35171	101623	9.05	5.00	40003.1	2000	NA	NA	0.017	NA	NA NA	1999.7	22.9	158-59-2	N/A	orl-rat 646r
rans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA.	1999.6	23.0	156-60-5	N/A	N/A
Methylene chlorida	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA.	1999.6	22.9	75-09-2	500 ppm	ort-rat 1235
1,1-Dichloroethene	32251	102023	0.10	10,00	20001.6	2000	NA	NA	0.042	NA	NA.	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat 820r ori-rat 200r
Bromeform	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	ori-rat 200r
Sarbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	58-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350
Chloroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-68-3	50 ppm (240mg/m3) (CL)	orf-ret 908r
Dibromomethane	95321	020724	0.10	10.00	20002.9	2000	NA	NA	0.042	NA	NA	1999.8	20.5	74-95-3	N/A	orl-ret 106r
,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	orl-rat 725m
,2-Dichloropropane ekrachloroethene	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	NA	NA
,1,1-Trichloroethane	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA	NA	2019.6	20.6	127-18-4	25 ppm (170mg/m3/8H)(final)	orl-rat 2629
2-Dibromo-3-chioropropane	95321 35161	020724	0.10	10.00	20003.0	2000	NA	NA	0.042	NA	NA	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/8H)	orl-rat 10300
2-Dibromoethane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA NA	2000.3	22.9	96-12-8	0.001 ppm	ori-rat 170n
2-Dichloroethane	35161	112322	0.08	5.00	40024.8	2000	NA	NA NA	0.017	NA	NA	2000.7	22.9	106-93-4	20 ppm (8H)	orf-rat 108m
,2-Dichloropropene	35161	112322	0.05	5.00	40051.0	2000	NA NA	NA NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670m
3-Dichloropropane	35161	112322	0.05	5.00	40005.9	2000	NA	NA.	0.017	NA NA	NA NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/9H)	ori-rat 1947s
1-Dichloropropene	35161	112322	0.05	5.00	40012.1	2000	NA	NA NA	0.017	NA NA	NA NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600
s-1,3-Dichloropropena	35161	112322	0.05	5.00	40010.0	2000	NA	NA	0.017	NA.	NA NA	2000.1	29.7 23.0 1	563-56-6 0061-01-5	N/A	N/A
ans-1,3-Dichloropropene	35161	112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4		0061-01-5	N/A	N/A
exachloro-1,3-butadiene	35181	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7	87-68-3	N/A 0.02 ppm (0.24mg/m3/6H)	N/A
1,1,2-Tetrachkoroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1	22.9	630-20-6	N/A	ori-rat 62m
1,2,2-Tetrachioroethane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	79-34-5	5 ppm (35mg/m3/9H)(aldn)	orl-rat 670m
1,2-Trichloroethane	35161	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	ori-rat 836m
ichloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/9H)	orl-mus 2402
2,3-Trichloropropane Inzene	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4	10 ppm (60mg/m3/8H)	ori-rat 149.6r
omobenzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894n
Butyl benzene	36162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-86-1	N/A	orl-rat 2699m
nyi benzene	35162 35162	060823 050823	0.05	5.00	40003.8	2000	NA	NA	0.017	NA	NA	1999.7		104-51-8	N/A	N/A
sopropyl toluene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		100-41-4	190 ppm (435mg/m3/8H)	orl-rat>2000
phthalene	35162	050823	0.05	5.00	40005.8 40006.2	2000	NA	NA NA	0.017	NA	NA .	1999.8	22.9	99-87-6	N/A	orl-rat 4750n
rrene	35162	050823	0.05	5.00	40004.8		NA NA	NA NA	0.017	NA	NA.	1999.8		91-20-3	10 ppm (50mg/m3/8H)	orl-rad 490m
UBDB	35162	050823	0.05	5.00	40006.2		NA	NA.	0.017	NA	NA	1999.7		00-42-5	100 ppm	orl-rat 5000m
,3-Trichlorobenzene	35162	050823	0.05	5.00	40003.1		NA.	NA.	0.017	NA NA	NA NA	1999.8		08-88-3	200 ppm	orl-rat 5000m
,4-Trichlorobenzene		050823	0.05	5.00	40008.8		NA	NA NA	0.017	NA	NA NA	1999.7		87-61-6	N/A	lpr-mus 1390r
,4-Trimethylbenzene	35162	050823	0.05	5.00	40001.8		NA	NA	0.017	NA NA	NA NA	1999.6		20-82-1	5 ppm (CL) (40mg/m3)	ori-rat 756m
,5-Trimethylbenzene	35162	050823	0.05	5.00	40006.7		NA	NA	0.017	NA	NA NA	1999.6	-	95-63-6 08-67-8	N/A N/A	ort-rat 5g/
Cylene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.6		08-38-3		orl-rat 5000m
-Butyl benzene			0.05	5.00	40001.2		NA	NA	0.017	NA	NA	1999.6		98-06-6	100 ppm (435mg/m3/8H) N/A	orl-rat 5g/
			0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA	1999.6		35-98-8	N/A	
	35163		0.05		40003.8	2000	NA	NA	0.017	NA	NA	1999.7		08-90-7	75 ppm (350mg/m3/8H)	pri-rat 2240m
orobenzene		101923	0.05		40000.3		NA	NA	0.017	NA	NA	1999.5		95-49-8	50 ppm (250mg/m3/8H)	orl-rat 3900m
orobenzene hiorotoluene				E 00	40003.3	2000	NA	NA	0.017	NA	NA	1999.7		06-43-4	N/A	orl-rat 2100m
orabenzene hlorotoluene hlorotoluene	35163	101923							0.047	814	NA.					
lorabenzene Shlorataluena Shlorataluene -Dichiorabenzene	35163 35163	101923 101923	0.05	5.00	40003.8		NA	NA	0.017	NA	PUN	1999.7	22.9	95-50-1	50 ppm (300ms/m3) (CL)	orl-rad 500mm
lorabenzene Zhlorotoluena Zhlorotoluena -Dichlorobenzene -Diahlorobenzene	35163 35163 35163	101923 101923 101923	0.05 0.05	5.00 5.00	40003.8 40001.7	2000	NA	NA	0.017	NA NA	NA	1999.7		95-50-1 41-73-1	50 ppm (300mg/m3) (CL) N/A	
lorobenzene Zhlorotoluene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene	35163 35163 35163	101923 101923 101923 101923	0.05 0.05 0.08	5.00 5.00 5.00	40003.8 40001.7 40001.8	2000	NA NA	NA NA	0.017 0.017	NA NA			23.0 5			pr-mus 1062rr
lorobenzene Ahlorotokuena Hakrotokuena -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene	35163 35163 35163 35163 35163	101923 101923 101923 101923 101923	0.05 0.05 0.08 0.05	5.00 5.00 5.00 5.00	40003.8 40001.7 40001.8 40000.8	2000   2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6	23.0 5 22.9 1	41-73-1	N/A	ori-rat 500mg
-Dichloroberizene -Dichloroberizene propylbenizene ropylbenizene	35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923 101923	0.05 0.05 0.08 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40003.8 40001.7 40001.8	2000   2000   2000   2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	23.0 5 22.9 1 22.9 9	41-73-1 06-46-7	N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/6H)	orl-rat 500mg lpr-mus 1062m orl-rat 500mg orl-rat 1400mg orl-rat 6040mg

<sup>\*</sup> The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.

\* Standards are prepared gravimetrically using behances that are calibrated with weights truccable to NIST (one above).

\* Standards are certified (<>) 2.67 of the stated value, sudow otherwise stated.

\* All Standards, after opening anapule, should be stored with cape tight and under appropriate taboratory candillons.

\* Uncertainty Reference: Taylor, RA, and Raylor, C.E., "Calcibrations for Evaluating and Expressing the Uncertainty of NIST Measurement Result, NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

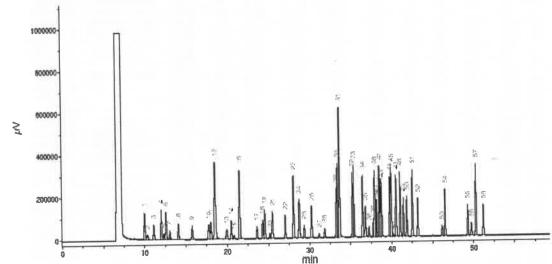
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

# Run 16, "P95317 L021624 [2000µg/mL in MeOH]"

Run Length: 60.00 min, 35998 points at 10 points/second. Created: Sat, Feb 17, 2024 at 8:56:46 AM. Sampled: Sequence "021624-GC5M1", Method "GC5-M1". Analyzed using Method "GC5-M1".

#### Comments

GC5-M1 Analysis by Candice Warren
Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness
Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min.,
Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min.
Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.),
Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C.
FID Signal = Edaq Channel 1
Standard injection = 0.5µL, Range=3



Penk #	Name	(min.)
1	Ether	9.97
2	1.1.2-Trichloro-1,2,2-trifluoroetherm	10.33
3	1,1-Dichlaroethene	11.10
4	Acetonitrila	12,00
5	Indometrane	12.31
6	Atlyl chforide	12.55
9	Carbon disulfide/Nathylene chloride	13,04
	trans-1,2-Dichloroethens	14.07
9	1.1-Dichloroethane	15.74
10	2,2-Dichlerograpane	17.70
3.3.	cis-1,2-Dichleroethene	19.60
52	Hethacrylonityke/Methyl ecrylete/Chloroform	10.45
13	Isobutanol/1,1,1-Trichlorosthans	19.91
14	1,1-Dichteropropené	20.46
15	Carbon tetrachionide	20.79
16	Benzens/1,2-Dicniproethane	21.49
17	Trichloroethene	21.58
10	1,2-Dichloropropene	24.28
19	Methyl methocrylate	24,52
20	Bromodichloromethana	25.13
21	Dibramamethene/2-Mitropropene	25.46
22	cis-1,3-Dichloropropens	27.02
23	Tosuane	26.05
24	Ethyl methacrylets/trans-1,3-Dichleropropens	28.73
25	L,1,2-Trichtoroet/sens	29.34
26	Tetrachloroethene/1,3-Dichloroprophis	20.24
27	Dibramochlaromettune	31,16
28	1,2-Dileamoethene	32.84
28	Chlorobenzenik	33.26
30	Ethymensene/1,1,1,2-fetractionoetharie	23.40
31	m-Xytene/p-Xytene	33.86
32	o-Mylene	35.22
33	Styrene	35.30
34	Esopropyl benzane/Bremefank	36,48
35	cm-1,4-Dichlore-2-buttene	36.00
26	1,5,2,2-Terrachioroethane	37.23
37	1,2,3-Yrichipropropane	37.77
211	n-Propylipe-talene	37.92
39	trans-1,4-Dichloro-3-Butene	38.05
40	Bromobenzen4	38.14
-61	1,3,5-Trymethy-benzerse	30.62
42	2-Chlerospinenk	38,77
43	4-Chlorotoluerie	39.76
44	tert-Butythenzene	39,91
45	1,2,4-Trimetry/benzene	40.17
46	Pertachlomethane	40.57
47	sec-Butylbenzena	41.02
48	p-Isopropykolu4Ne	41.42
-19	1,3-Orchigrobensens	45.83
50	1,4-Dictiorobenzene	42.52
52	n-Butylbenzene 1.2-Dichlorobenzene	43.38
	1,2-Dightoropensene 1,2-Dightomo-3-chloropropene	46.12
53 54	%Etrobencane	46,48
		49.26
55	1,2,4-fitchtorobenzarie HersachSprobutadiens	49.72
56 57	Hatherstrounders	\$0.26
58	1,2,3-Trichlarobenzene	51.16
28	T's' T-10 Casta Contractor	

PO Box 5585 Hamden, CT 06518-0585

Phone: 203-281-2917 FAX: 203-281-2922

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC.

Emergency Telephone USA & CANADA

1-800-535-5053

Address

44 Rossotto Dr. Hamden CT, 06514 Emergency Telephone International Date Prepared/Revised

1-352-323-3500 January 1, 2023

Section II - Hazards Identification

GHS Classification In accordance with 29 CFR 1910 (OSHA HCS)

H225 H370 **Highly Flammable Liquid and Vapor** 

H301, 311, 331 Toxic if swallowed, skin contact, inhaled

P271

Cause damage to organs Use in ventilated area

H351 P280

Suspected of causing cancer

P302.332

If on skin, wash with soap and water

P305,351,338

Use gloves, eye protection/face shelld If in eyes, remove contacts, rinse with water





Signal Word: DANGER

Section III - Composition

Components (Specific Chemical Identity; Common Name(s)) Methanol

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area. If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

If inhaled

Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from

heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media

Protective equipment for fire

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Clean up

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - Physical/Chemical Characteristics

Methanol-SDS.xls

Page 1 of 2

Printed: 2/19/24

#### Absolute Standards Inc.

PO Box 5585 Hamden, CT 06518-0585 Phone: 203-281-2917 FAX: 203-281-2922

Boiling Point	65°C	Specific Gravity (H2O = 1)	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

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

# Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight. Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Materials to avoid Hazardous 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

IATA

Proper shipping name:

UN number: 1230 Class: 3 Packing group: II Methanol

Proper shipping name:

UN number: 1230 Class: 3 Packing group: 11

#### Section XV. REGULATORY INFORMATION

Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant OSHA Hazards 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. warrants that the chemical meets the specifications set forth on the label. 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 CRM



Absolute Standards, Inc.

www.absolutestandards.com

800-368-1131



Part Number: CERTIFIED WEIGHT REPORT

Lots

EC592-US Solvent(s): Methanol 5E-05 Balance Uncertainty Revised Additions Mix Refrigerate (4 °C) 11 components 032925 032922 Varied **6UTB** Nominal Concentration (µg/mL): Lot Number: Description: **Expiration Date:** Recommended Storage: NIST Test ID#:

0.012 Flack Uncertainty

100.0

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

DATE DATE 032922 032922 Prashant Chauhan Pedro L. Rentas Smal Formulated By: 兪 Reviewed

									Expanded		SDS Information	
		Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Solvent	(Solvent Safety Info. On Attached pg.)	led pg.)
Compound	RM#	Number	Conc (ug/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL) (+/-) (µg/mL)	(+/-) (ng/mL)	CAS#	OSHA PEL (TWA)	1050
Acrylonitrile	7	4718CK	10000	66	0.2	1.01015	1.01030	10001.5	40.5	107-13-1	NA	orl-rat 78 marka
1-Chlorobutane	1072	MKCM5711	2000	99.99	0.2	0.20003	0.20020	2001.7	8.1 T.8	109-69-3	NA	orl-rat 2670ma/kg
Cyclohexane	1023	28930	2000	66	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050ma/m3/8H)	orl-rat 12705ma/kg
Di-isopropyl ether (DIPE)	282	00412MX	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-20-3	500 ppm (2100mg/m3/8H)	orl-rat 8470mg/kg
1,4-Dioxane	373	03853KE	40000	66	0.2	4.04060	4.04100	40004.0	161.9	123-91-1	25 ppm (90ma/m3/8H)(skin) orl-mus 5700ma/ka	ort-mus 5700ma/kg
Hexachloroethane	199	12604HBV	2000	66	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	1 ppm (10mg/m3/8H)(skin)	ort-apa 4970marka
Methylcyclohexane	1627	08046KN	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-87-2	WA	N/A
Methyl tert-butyl ether (MTBE)	509	02197JJJ	2000	99.8	0.2	0.20041	0.20055	2001.4	9.1	1634-04-4	WA	orl-rat 49/kg
Propionitrile	348	1395468	20000	66	0.2	2.02030	2.02045	20001.5	81.0	107-12-0	NA	orl-rat 39mg/kg
Tetrahydrofuran	380	SHBH8330	10000	6.66	0.2	1.00105	1.00120	10001.5	40.1	109-99-9	20 ppm (590ma/m3/8H)	ort-rat 1650mo/kg
								Str. I				0

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated. TIC: 95319.D 4bundance

 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).

orl-rat 6408mg/kg

¥

488-23-3

8.7

2001.3

0.21520

0.21506

0.2

8

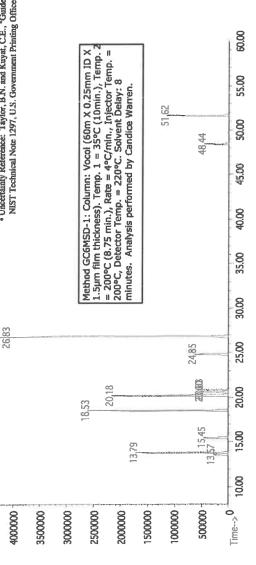
2000

AP01

491

11. 1,2,3,4-Tetramethylbenzene

9



	<b>MSD RT</b>
Name	(min.)
Methyl tert-butyl ether (MTBE)	13.56
Acrylonitrile	13.79
Di-isopropyl ether	15,44
Propionitrile	18.53
Tetrahydrofuran	20.17
Cyclohexane	20.58
1-Chlorobutane	20.83
Methylcyclohexane	24.84
1,4-Dioxane	26.84
Hexachloroethane	48.44
1,2,3,4-Tetramethylbenzene	51.62

200 ppm

OSHA PEL

66 <

(lenoitqo) %

### Absolute Standards Inc.

GHS/OSHA Compliant

### Safety Data Sheet (SDS)

ABSOLUTE STANDARDS INC

### Section I Product and Company Identification

### 1-800-535-5053 ANALYTICAL STANDARD DISSOLVED IN METHANOL **IDENTITY**

Hamden CT, 06514 Date Prepared/Revised January 1, 2023 Emergency Telephone International 44 Rossotto Dr. 1-362-323-3500

Emergency Telephone USA & CANADA

### Section II - Hazards Identification

### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

If in eyes, remove contacts, rinse with water If on skin, wash with soap and water P302,332 P305,351,338 Use in ventilated area Use gloves, eye protection/face sheild P280 P271 Cause damage to organs Suspected of causing cancer 02EH H321 Highly Flammable Liquid and Vapor H301, 311, 331 Toxic if swallowed, skin contact, inhaled **H**225

Section III - Composition

2,769 mg/kg Methanol 1-99-79 Components: LD50 Oral - Rat CY2#:

Signal Word: DANGER

INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities.

Section IV. FIRST AID MEASURES

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Protective equipment for fire

bewollswe if

General advice

lf inhaled

Address

Manufacturer's Name

In case of eye contact In case of skin contact

Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. heat/sparks/open flame/hot surface. No smoking. Flammability Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from

Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

ignition. Vapours accumulate to form explosive concentrations. Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of Personal precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13). Environmental precautions

Section VII. HANDLING AND STORAGE

Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling

and kept upright to prevent leakage. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed Storage Conditions

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mqq 00S AWT 1-88-78 Methanol

Potential for skin absorption, ingestion and inhalation. mqq 00S AWT Skin notation

Eye protection. Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Personal protective equipment

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - Physical/Chemical Characteristics

			COMPLETE	Solubility in Water
9.4	Evaporátion rate (Butyl Acetate = 1)	FF., F		Vapor Density (AIA = 1)
O∘86-	Melting Point	96		Vapor Pressure (mm Hg)
6L.0	Specific Gravity (H2O = 1)	0-99 ———————————————————————————————————		Boiling Point

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Vapours may form explosive mixture with air. Possibility of hazardous reactions Chemical stability Stable under recommended storage conditions.

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids Materials to avoid Heat, flames, sparks, extreme temperature and sunlight. Diovs of anoifibno

### Hazardous decomposition products formed under fire conditions. - Carbon oxides

### Section XI. TOXICOLOGICAL INFORMATION

LD50 Demal - rabbit - 15,800 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Oral - rat - 5,628 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Appearance and Odor

Toxic if swallowed.

(SU) TOG

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

4 96 - Ngm 004,81 TC20

10,000.000 mg/l - 24 h EC100 24,500.00 mg/l - 48 h EC20

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

Proper shipping name: Methanol UN number: 1230 Class: 3 Packing group: II

### Section XV. REGULATORY INFORMATION

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: II

Methanol

### Section XVI. Misc. INFORMATION

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. handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute MERCHANAPBITITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially it improperly STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS usage, protective ciolibing including eye and face guards and respirators must be used to avoid contact with material or breathing including eye and face guards and respirators. 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 warrants that the chemical meets the specifications set forth on the label. ABSOLUTE GRADARDS INC warrants that the chemical meets the specifications set forth on the label. ABSOLUTE subservised 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 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 910). 200 and Clobal Harmoniked System (GHS). This document is intended only as a guide to the appropriate presautionary handling of the material by frained personnel, or

# Certified Reference Material CRM



Absolute Standards, Inc.

www.absolutestandards.com

800-368-1131



Part Number: CERTIFIED WEIGHT REPORT

Lots

EC592-US Solvent(s): Methanol 5E-05 Balance Uncertainty Revised Additions Mix Refrigerate (4 °C) 11 components 032925 032922 Varied **6UTB** Nominal Concentration (µg/mL): Lot Number: Description: **Expiration Date:** Recommended Storage: NIST Test ID#:

0.012 Flack Uncertainty

100.0

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

DATE DATE 032922 032922 Prashant Chauhan Pedro L. Rentas Smal Formulated By: 兪 Reviewed

									Expanded		SDS Information	
		Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Solvent	(Solvent Safety Info. On Attached pg.)	led pg.)
Compound	RM#	Number	Conc (ug/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL) (+/-) (µg/mL)	(+/-) (ng/mL)	CAS#	OSHA PEL (TWA)	1050
Acrylonitrile	7	4718CK	10000	66	0.2	1.01015	1.01030	10001.5	40.5	107-13-1	NA	orl-rat 78 marka
1-Chlorobutane	1072	MKCM5711	2000	99.99	0.2	0.20003	0.20020	2001.7	8.1 T.8	109-69-3	NA	orl-rat 2670ma/kg
Cyclohexane	1023	28930	2000	66	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050ma/m3/8H)	orl-rat 12705ma/kg
Di-isopropyl ether (DIPE)	987	00412MX	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-20-3	500 ppm (2100mg/m3/8H)	orl-rat 8470mg/kg
1,4-Dioxane	373	03853KE	40000	66	0.2	4.04060	4.04100	40004.0	161.9	123-91-1	25 ppm (90ma/m3/8H)(skin) orl-mus 5700ma/ka	orl-mus 5700ma/kg
Hexachloroethane	199	12604HBV	2000	66	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	1 ppm (10mg/m3/8H)(skin)	ort-apa 4970marka
Methylcyclohexane	1627	08046KN	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-87-2	WA	N/A
Methyl tert-butyl ether (MTBE)	509	02197JJJ	2000	93.8	0.2	0.20041	0.20055	2001.4	9.1	1634-04-4	WA	orl-rat 49/kg
Propionitrile	349	1395468	20000	66	0.2	2.02030	2.02045	20001.5	81.0	107-12-0	NA	orl-rat 39mg/kg
Tetrahydrofuran	380	SHBH8330	10000	6.66	0.2	1.00105	1.00120	10001.5	40.1	109-99-9	20 ppm (590ma/m3/8H)	ort-rat 1650mo/kg
								Str. I				0

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated. TIC: 95319.D 4bundance

 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).

orl-rat 6408mg/kg

¥

488-23-3

8.7

2001.3

0.21520

0.21506

0.2

8

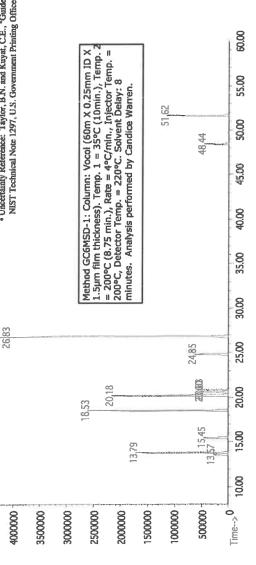
2000

AP01

491

11. 1,2,3,4-Tetramethylbenzene

9



	<b>MSD RT</b>
Name	(min.)
Methyl tert-butyl ether (MTBE)	13.56
Acrylonitrile	13.79
Di-isopropyl ether	15,44
Propionitrile	18.53
Tetrahydrofuran	20.17
Cyclohexane	20.58
1-Chlorobutane	20.83
Methylcyclohexane	24.84
1,4-Dioxane	26.84
Hexachioroethane	48.44
1,2,3,4-Tetramethylbenzene	51.62

200 ppm

OSHA PEL

66 <

(lenoitqo) %

### Absolute Standards Inc.

GHS/OSHA Compliant

### Safety Data Sheet (SDS)

ABSOLUTE STANDARDS INC

### Section I Product and Company Identification

### 1-800-535-5053 ANALYTICAL STANDARD DISSOLVED IN METHANOL **IDENTITY**

Hamden CT, 06514 Date Prepared/Revised January 1, 2023 Emergency Telephone International 44 Rossotto Dr. 1-362-323-3500

Emergency Telephone USA & CANADA

### Section II - Hazards Identification

### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

If in eyes, remove contacts, rinse with water If on skin, wash with soap and water P302,332 P305,351,338 Use in ventilated area Use gloves, eye protection/face sheild P280 P271 Cause damage to organs Suspected of causing cancer 02EH H321 Highly Flammable Liquid and Vapor H301, 311, 331 Toxic if swallowed, skin contact, inhaled **H**225

Section III - Composition

2,769 mg/kg Methanol 1-99-79 Components: LD50 Oral - Rat CY2#:

Signal Word: DANGER

INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities.

Section IV. FIRST AID MEASURES

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Protective equipment for fire

bewollswe if

General advice

lf inhaled

Address

Manufacturer's Name

In case of eye contact In case of skin contact

Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. heat/sparks/open flame/hot surface. No smoking. Flammability Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from

Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

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Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13). Environmental precautions

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Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling

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mqq 00S AWT 1-88-78 Methanol

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Eye protection. Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Personal protective equipment

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9.4	Evaporátion rate (Butyl Acetate = 1)	FF., F		Vapor Density (AIA = 1)
O∘86-	Melting Point	96		Vapor Pressure (mm Hg)
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Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Appearance and Odor

Toxic if swallowed.

(SU) TOG

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

4 96 - Ngm 004,81 TC20

10,000.000 mg/l - 24 h EC100 24,500.00 mg/l - 48 h EC20

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

Proper shipping name: Methanol UN number: 1230 Class: 3 Packing group: II

### Section XV. REGULATORY INFORMATION

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: II

Methanol

### Section XVI. Misc. INFORMATION

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## Certified Reference Material CRM

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

	Johosh Johnson	ppold DATE		081424	Rentas DATE		SDS Information	(Solvent Safety Info. On Attached pg.)	OSHA PEL (TWA)		U.1 ppm ori-rat 46mg/kg	ime 2 = 8.75 min.)
	Comment of the second	Formulated By: Justin Dippold	3	flesto po	Reviewed By: Pedro L. Rentas		Expanded SDS in	Uncertainty (Solvent Safety in	- 1	0000	32.0 1U/-UZ-8 U.1	Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocoi (60m X 0.25mm ID X 1.5µm film thickness). Over Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2 = 8.75 min.) Rate = 4°C (Time 1 = 10min.), Temp. 2 = 2.20°C (Time 2 = 8.75 min.) Rate = 4°C (Time 1 = 10min.), Temp. 2 = 8.75 min.) Rate = 4°C (Time 1 = 10min.), Temp. 2 = 8.75 min.) Rate = 4°C (Time 1 = 10min.), Temp. 2 = 8.75 min.) Rate = 4°C (Time 1 = 10min.), Temp. 2 = 8.75 min.) Rate = 4°C (Time
		Forr			Revi		Exp	Actual Unce	Conc (ug/mL) (++-) (ug/mL)	0	50.00	file: Temp. 1 = 35°C (Tin all solutions of acrolein,
	Lot#							Actual	Weight(g)	0.08408	0,00100	kness). Oven Pro
	Solvent(s): Water				rtainty	inty		/ Target	Weight(g)	0.05488	0.00100	<ol> <li>1.5μm film thic</li> <li>instability of ac</li> </ol>
					5E-05 Balance Uncertainty	0.001 Flask Uncertainty		Purity Uncertainty	) Purity	4	200	X 0.25mm ID NOTE: Due to the
					5E-				3/mľ.) (96)	70 0		t: Vocol (60n dro Rentas. N
			(4 °C)			10.0		Nominal	Conc (vg/ml.)	2000		de). Column Analyst: Per
	91980 081424 Acrolein	004400	Refrigerate (4 °C)	2000	6UTB	rted to (mL):		Ę	Number	103755V10F		Temp. = 220°C.
	'art Number: Lot Number: Description:		torage:	rg/mL):	ist ID#:	ubined and dill			RM#	ıcı		Mass Selective D
CERTIFIED WEIGHT REPORT	Part Number: Lot Number: Description:	- Contrastino	Recommended Storage:	Nominal Concentration (µg/mL):	Nich lest ID#:	Weight(s) shown below were combined and diluted to (mL):			Compound	1. Acrolein		Method; GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vocoi (60m X 0.25mm ID X 1 Rate = 4 C/min; inflorior Temp; = 200°C, Detector Temp; = 220°C, mayagast Pedro Serniss. NOTE: Due to the inflore temp storage is not recommended Planes contact our reducing danactories. We further included the contact of the contact o

1. Acrole	두 호텔.	5 ctive I	2220°C. An	5000 Column: Vocabyst: Pedro Re	97 ol (60m X 0.2 ntas. NOTE	5000 97 0.5 0.  Junus: Vocoi (60m X 0.25mm ID X 1.5µm  11: Pedro Rentas. NOTE: Due to the instabi	0.05166 Sym film thickness stability of acrolei	1.05166 0.05185 5018.6 52.6 107-02- n film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Tenr bility of arrolein in solution, all solutions of acrolein, and any dilutions th	5018.6 : Temp. 1 = 35% solutions of acr	52.6 CTime 1 = 1	107-02-8 = 10min.), Temp. 2=, any dilutions thereof.	5000         97         0.5         0.05166         0.05185         5018.6         52.6         107-02-8         0.1 ppm         o           olumn: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=20°C (Time 2 = 8.75 min.)         35°C (Time 2 = 8.75 min.)         35°C (Time 2 = 8.75 min.)	orl-rat 46mg
	Long term storage is not recommended. Plea	ase conta	act our technical der	partment if furth	er informatic	on is required.							2
													7

department if further information is required.	Scan 232 (8.927 min): [BSB2]79005.D		26
Southou, a	1	/2	
second or account in	Abundance	00009	20000
Long term storage is not recommended. Please contact our technical department if further information is required.	TIC: [BSB2]79005.D	8.93	
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	Abundance	250000	200000

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30 20 0<--z/m 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00 Time-->0

158 169

The certified value is the concentration calculated from gravimetric and volumetric measurements unless eitherwise stated.
 Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are critified (4-1) 6.5% of the stated value, unless otherwise stated.
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www.absolutestandards.com

800-368-1131

081524 DATE 081524 DATE orl-rat 46mg/kg D50 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) Pedro L. Rentas **Gabriel Helland** 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By Uncertainty (+/-) (mg/mL) Expanded 52.5 Conc (ug/mL) 5004.1 Actual Weight(g) 1211230 0.05170 Lot# Solvent(s): Weight(g) 0.05166 Target 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Uncertainty Purity 0.5 Purity (96) 97 Conc (vg/mt.) 10.0 Nominal 5000 Refrigerate (4 °C) 103755R02H Weight(s) shown below were combined and diluted to (mL): Number Acrolein ĕ 081524 091524 **6UTB** 5000 **84** S Description: Part Number: **Expiration Date:** Recommended Storage: Nominal Concentration (µg/mL): Lot Number: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound 1. Acrolein

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5μm film thickness). Oven 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, D Long term storage is not recommended. Please contact our technical department if further information is required.

Scan 232 (8.927 min): [BSB2]79005.D

27

50000 Abundance 90009 TIC: [BSB2]79005.D 8.93

200000

150000

250000

Abundance

100000

50000

Time-->0

56

40000

30000

20000

10000

5

\$ 0<--Z/III

82

75

65

158 169

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.01

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

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 traccable to NIST (see above).
 Standards are certified (4/4) 5.5% of the stated value, unless otherwise stated.
 Standards are certified (4/4) 5.5% of the stated value, unless otherwise stated.
 All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evabuating and Expressing the Uncertainty of NIST Measurement Result,"

		Z.	

January 1, 2024

1-352-323-3500

1-800-535-5053

**Z6** <

(lanoitqo) %

If in eyes, remove contacts, rinse with water

Use gloves, eye protection/face shelld

Causes skin and eye irritation.

GHS/OSHA Compliant Safety Data Sheet (SDS)

### Section I Product and Company Identification

Emergency Telephone USA & CANADA Manufacturer's Name ABSOLUTE STANDARDS INC ANALYTICAL STANDARD DISSOLVED IN WATER *IDENTITY* 

Hamden CT, 06514 44 Rossofto Dr.

Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Use in ventilated area

It on skin, wash with soap and water

P302,332

if swallowed

if inhaled

Water

LZZd

Address

General advice

In case of eye contact

In case of skin contact

Signal Word: DANGER

Section III - Composition

Components (Specific Chemical Identity; Common Name(s))

See Certified Weight Report For Other Analytes Present At Trace Quantities.

Section IV. FIRST AID MEASURES

INTENDED USE: REFERENCE MATERIAL

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.

CAS#: 7732-18-5

P305,351,338

Date Prepared/Revised

Emergency Telephone International

0829

**H312** 

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Section V. FIREFIGHTING MEASURES

Carbon oxides Hazardous Decomposition products Wear self contained breathing apparatus for fire fighting if necessary. Protective equipment for fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Suitable extinguishing media

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. ignition. Vapours accumulate to form explosive concentrations.

Clean up Environmental precautions

Precautions for safe handling

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Use ventilation Keep away from sources of ignition. No smoking, Prevent the build up of electrostatic charge. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed

and kept upright to prevent leakage.

Storage Conditions

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mdq 008 :AWT CAS#: 7732-18-5 Water

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment Eye protection.

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Vapor Pressure (mm Hg) Melting Point L 100°C Specific Gravity (H2O = 1) Boiling Point

	SLIGHT CHEMICAL ODOR.	LIQUID WITH	CLEAR, COLORLESS	Appearance and Odor
			Completely miscible	Solubility in Water
ΑN	Evaporation rate (Butyl Acetate = 1)	AN		Vapor Density (AIR = 1)
0°C		ΑN		

### Section X. STABILITY AND REACTIVITY

Chemical stability of hazardous reactions NA NA

AN biovs of shoiltions of shoilting AN biovs of shoilting AN

Hazardous decomposition products - No data available

### Section XI, TOXICOLOGICAL INFORMATION

LD50 Oral - Rat NA LD50 Dermal - Guines pig NA

Causes skin irritation. Eye irritation

### Section XII. ECOLOGICAL INFORMATION

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

IATA

Not dangerous goods

Proper shipping name: Water

DOT (US) Not dangerous goods Proper shipping name: Water

### Section XV. REGULATORY INFORMATION

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### Section XVI. Misc. INFORMATION

### Certified Reference Material CRM



nttps://Absolutestandards.com AR-1539 Certificate Number

Absolute Standards, Inc.

www.absolutestandards.com

800-368-1131

081524 DATE 081524 DATE orl-rat 46mg/kg D50 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) Pedro L. Rentas **Gabriel Helland** 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By Uncertainty (+/-) (mg/mL) Expanded 52.5 Conc (ug/mL) 5004.1 Actual Weight(g) 1211230 0.05170 Lot# Solvent(s): Weight(g) 0.05166 Target 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Uncertainty Purity 0.5 Purity (96) 97 Conc (vg/mt.) 10.0 Nominal 5000 Refrigerate (4 °C) 103755R02H Weight(s) shown below were combined and diluted to (mL): Number Acrolein ĕ 081524 091524 **6UTB** 5000 **84** S Description: Part Number: **Expiration Date:** Recommended Storage: Nominal Concentration (µg/mL): Lot Number: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound 1. Acrolein

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5μm film thickness). Oven 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, D Long term storage is not recommended. Please contact our technical department if further information is required.

Scan 232 (8.927 min): [BSB2]79005.D

27

50000 Abundance 90009 TIC: [BSB2]79005.D 8.93

200000

150000

250000

Abundance

100000

50000

Time-->0

56

40000

30000

20000

10000

5

\$ 0<--Z/III

82

75

65

158 169

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.01

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

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evabuating and Expressing the Uncertainty of NIST Measurement Result,"

		Z.	

If in eyes, remove contacts, rinse with water

**Z6** <

(lanoitqo) %

GHS/OSHA Compliant Safety Data Sheet (SDS)

### Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **DENTITY** 

January 1, 2024 Date Prepared/Revised Hamden CT, 06514 Emergency Telephone International 44 Rossofto Dr. Address 1-352-323-3500 Emergency Telephone USA & CANADA Manufacturer's Name ABSOLUTE STANDARDS INC 1-800-535-5053

### Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

P305,351,338

Use gloves, eye protection/face shelld It on skin, wash with soap and water 0829 Use in ventilated area Causes skin and eye irritation. **H312** 

Signal Word: DANGER

Section III - Composition

CAS#: 7732-18-5 Components (Specific Chemical Identity; Common Name(s))

INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities.

Section IV. FIRST AID MEASURES

If inhaled, move person into fresh sir. If not breathing, give artificial respiration. Consult a physician. Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### Section V. FIREFIGHTING MEASURES

Wear self contained breathing apparatus for fire fighting if necessary. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Carbon oxides Hazardous Decomposition products Protective equipment for fire

### Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. ignition. Vapours accumulate to form explosive concentrations.

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Environmental precautions

Suitable extinguishing media

if swallowed

if inhaled

P302,332

LZZd

General advice

In case of eye contact

In case of skin contact

### Section VII. HANDLING AND STORAGE

Use ventilation Keep away from sources of ignition. No smoking, Prevent the build up of electrostatic charge. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed Storage Conditions

and kept upright to prevent leakage.

### Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mqq 008 :AWT Water CAS#: 7732-18-5

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment Eye protection.

1				
		CHARACTERISTICS	HASICAL/CHEMICAL	Section IX - F

	Juiog Point		Vapor Pressure (mm Hg)
Ļ	Specific Gravity (H2O = 1)	100°C	Boiling Point
	3.6.		

	SLIGHT CHEMICAL ODOR.	LIQUID WITH	CLEAR, COLORLESS	Appearance and Odor
			Completely miscible	Solubility in Water
ΑN	Evaporation rate (Butyl Acetate = 1)	AN		Vapor Density (AIR = 1)
0°C		ΑN		

### Section X. STABILITY AND REACTIVITY

Chemical stability of hazardous reactions NA NA

AN biovs of shoiltions of shoilting AN biovs of shoilting AN

Hazardous decomposition products - No data available

### Section XI, TOXICOLOGICAL INFORMATION

LD50 Oral - Rat NA LD50 Dermal - Guines pig NA

Causes skin irritation. Eye irritation

### Section XII. ECOLOGICAL INFORMATION

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

IATA

Not dangerous goods

Proper shipping name: Water

DOT (US) Not dangerous goods Proper shipping name: Water

### Section XV. REGULATORY INFORMATION

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### Section XVI. Misc. INFORMATION

### Certified Reference Material CRM



nttps://Absolutestandards.com AR-1539 Certificate Number

Absolute Standards, Inc.

www.absolutestandards.com

800-368-1131

081524 DATE 081524 DATE orl-rat 46mg/kg D50 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) Pedro L. Rentas **Gabriel Helland** 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By Uncertainty (+/-) (mg/mL) Expanded 52.5 Conc (ug/mL) 5004.1 Actual Weight(g) 1211230 0.05170 Lot# Solvent(s): Weight(g) 0.05166 Target 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Uncertainty Purity 0.5 Purity (96) 97 Conc (vg/mt.) 10.0 Nominal 5000 Refrigerate (4 °C) 103755R02H Weight(s) shown below were combined and diluted to (mL): Number Acrolein ĕ 081524 091524 **6UTB** 5000 **84** S Description: Part Number: **Expiration Date:** Recommended Storage: Nominal Concentration (µg/mL): Lot Number: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound 1. Acrolein

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5μm film thickness). Oven 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, D Long term storage is not recommended. Please contact our technical department if further information is required.

Scan 232 (8.927 min): [BSB2]79005.D

27

50000 Abundance 90009 TIC: [BSB2]79005.D 8.93

200000

150000

250000

Abundance

100000

50000

Time-->0

56

40000

30000

20000

10000

5

\$ 0<--Z/III

82

75

65

158 169

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.01

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

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

		Z.	

If in eyes, remove contacts, rinse with water

**Z6** <

(lanoitqo) %

GHS/OSHA Compliant Safety Data Sheet (SDS)

### Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **DENTITY** 

January 1, 2024 Date Prepared/Revised Hamden CT, 06514 Emergency Telephone International 44 Rossofto Dr. Address 1-352-323-3500 Emergency Telephone USA & CANADA Manufacturer's Name ABSOLUTE STANDARDS INC 1-800-535-5053

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GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

P305,351,338

Use gloves, eye protection/face shelld It on skin, wash with soap and water 0829 Use in ventilated area Causes skin and eye irritation. **H312** 

Signal Word: DANGER

Section III - Composition

CAS#: 7732-18-5 Components (Specific Chemical Identity; Common Name(s))

INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities.

Section IV. FIRST AID MEASURES

If inhaled, move person into fresh sir. If not breathing, give artificial respiration. Consult a physician. Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### Section V. FIREFIGHTING MEASURES

Wear self contained breathing apparatus for fire fighting if necessary. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Carbon oxides Hazardous Decomposition products Protective equipment for fire

### Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. ignition. Vapours accumulate to form explosive concentrations.

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Environmental precautions

Suitable extinguishing media

if swallowed

if inhaled

P302,332

LZZd

General advice

In case of eye contact

In case of skin contact

### Section VII. HANDLING AND STORAGE

Use ventilation Keep away from sources of ignition. No smoking, Prevent the build up of electrostatic charge. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed Storage Conditions

and kept upright to prevent leakage.

### Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mqq 008 :AWT Water CAS#: 7732-18-5

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment Eye protection.

1				
		CHARACTERISTICS	HASICAL/CHEMICAL	Section IX - F

	Juiog Point		Vapor Pressure (mm Hg)
Ļ	Specific Gravity (H2O = 1)	100°C	Boiling Point
	3.6.		

	SLIGHT CHEMICAL ODOR.	LIQUID WITH	CLEAR, COLORLESS	Appearance and Odor
			Completely miscible	Solubility in Water
ΑN	Evaporation rate (Butyl Acetate = 1)	AN		Vapor Density (AIR = 1)
0°C		ΑN		

### Section X. STABILITY AND REACTIVITY

Chemical stability of hazardous reactions NA NA

AN biovs of shoiltions of shoilting AN biovs of shoilting AN

Hazardous decomposition products - No data available

### Section XI, TOXICOLOGICAL INFORMATION

LD50 Oral - Rat NA LD50 Dermal - Guines pig NA

Causes skin irritation. Eye irritation

### Section XII. ECOLOGICAL INFORMATION

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

IATA

Not dangerous goods

Proper shipping name: Water

DOT (US) Not dangerous goods Proper shipping name: Water

### Section XV. REGULATORY INFORMATION

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### Section XVI. Misc. INFORMATION

### Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



### Certified Reference Material CRM

Solvent(s):

Methanol



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

CERTIFIED WEIGHT REPORT

**Part Number:** Lot Number:

95318

111722

2-Chloroethyl vinyl ether

**Expiration Date:** 

Description:

111725

Recommended Storage: Nominal Concentration (µg/mL): Refrigerate (4 °C) 10000

NIST Test ID#:

**6UTB** 

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

50.0

10000

0.001 Flask Uncertainty

5E-05 Balance Uncertainty

99

0.50551

10001.9

40.5

110-75-8

Lot#

EB679-US

111722 Formulated By: Eli Aliao DATE 111722 Reviewed By: Pedro L. Rentas DATE

N/A

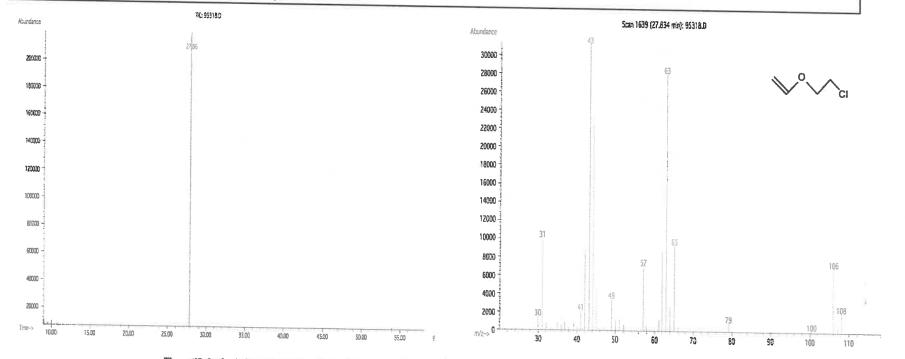
**SDS Information** Expanded Uncertainty

Nominal Purity Uncertainty Target Actual (Solvent Safety Info. On Attached pg.) Actual Compound Lot Number Conc (µg/mL) (%) Purity Weight (g) Weight (g) Conc(µg/mL) (+/-) (µg/mL) OSHA PEL (TWA) 2-Chloroethyl vinyl ether **MKCD0033** 

0.50541

orl-rat 250mg/kg Method: GC6MSD-1.M. Detector: MSD. Column: (60m X 0.25mm X 1.5 \mu m). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp. = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.

0.2



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

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

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

### 800-368-1131 Absolute Standards, Inc.

www.absolutestandards.com

# Certified Reference Material CRM



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

### CERTIFIED WEIGHT REPORT

Part Number: Lot Number: Description: 95318 2-Chloroethyl vinyl ether 121321

Expiration Date: 121324

Weight(s) shown below were combined and diluted to (mL): Nominal Concentration (µg/mL): Recommended Storage: 10000 Refrigerate (4 °C)

30.0 0.0003 Flask Uncertainty 5E-05 Balance Uncertainty

11

121321

DATE

Solvent(s):

Lot#

Methanol

**EA899-US** 

ormulated By: Benson Chan

Reviewed By: Pedro L. Rentas

121321 DATE

Uncertainty Expanded (Solvent Safety Info. On Attached pg.) SDS Information

2-Chloroethyl vinyl ether Method: GC6MSD-1.M. Detector: MSD. Column: (60m X 0.25mm X 1.5 \mu m). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., 74 MKCD0033 Conc (µg/mL) 10000 99 3 Purity 0.2 Weight (g) 0.30320 0.30411 Weight (g) Conc(µg/mL) 10030.2 (+/-) (µg/mL 40.7 110-75-8 CAS# OSHA PEL (TWA) X orl-rat 250mg/kg 1050

Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.

RM#

Lot Number

Nominal

Purity

Uncertainty

Target

Actual

Actual

Topy

100

530

200

25.00

30.00

35.00

40,00

\$50

50.00

55.00

8

8

8

8

70

8

8

10

79 23

8

2000

2000

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

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

### 800-368-1131 Absolute Standards, Inc.

www.absolutestandards.com

# Certified Reference Material CRM



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

### CERTIFIED WEIGHT REPORT

Part Number: Lot Number: Description: 95318 2-Chloroethyl vinyl ether 121321

Expiration Date: 121324

Weight(s) shown below were combined and diluted to (mL): Nominal Concentration (µg/mL): Recommended Storage: 10000 Refrigerate (4 °C)

30.0 0.0003 Flask Uncertainty 5E-05 Balance Uncertainty

11

121321

DATE

Solvent(s):

Lot#

Methanol

**EA899-US** 

ormulated By: Benson Chan

Reviewed By: Pedro L. Rentas

121321 DATE

Uncertainty Expanded (Solvent Safety Info. On Attached pg.) SDS Information

2-Chloroethyl vinyl ether Method: GC6MSD-1.M. Detector: MSD. Column: (60m X 0.25mm X 1.5 \mu m). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., 74 MKCD0033 Conc (µg/mL) 10000 99 3 Purity 0.2 Weight (g) 0.30320 0.30411 Weight (g) Conc(µg/mL) 10030.2 (+/-) (µg/mL 40.7 110-75-8 CAS# OSHA PEL (TWA) X orl-rat 250mg/kg 1050

Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.

RM#

Lot Number

Nominal

Purity

Uncertainty

Target

Actual

Actual

Topy

100

530

200

25.00

30.00

35.00

40,00

\$50

50.00

55.00

8

8

8

8

70

8

8

10

79 23

8

2000

2000

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

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



### CERTIFIED REFERENCE MATERIAL



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

### **Certificate of Analysis**





www.restek.com

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

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

Catalog No.: 30470

Lot No.: A0181905

tert-Butanol Standard

tert-Butanol Std 50,000µg/mL, P&T Methanol, 1mL/ampul

Container Size: 2 mL Pkg Amt: > 1 mL

Expiration Date: February 28, 2025 Storage: 0°C or colder

Ship: Ambient

### CERTIFIED VALUES

Elution Order		Compound	Grav. Conc.		Expanded U (95% C.L.; K	CONTRACTOR OF THE PARTY OF THE	
1	tert-Butanol (TBA) CAS # 75-65-0 Purity 99%	(Lot SHBM7694)	50,126.0 μg/mL	+/-	293.4988 1,073.7654 1,104.9494	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Methanol CAS # 67-56-1 Purity 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.)

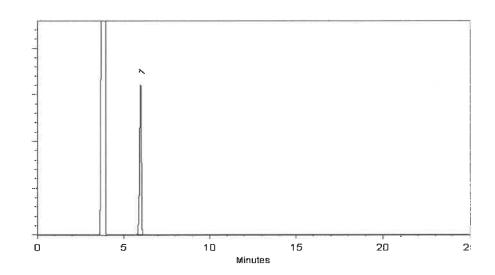
### Inj. Temp:

200°C

### Det. Temp:

250°C

### Det. Type:



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.

John Friedline - Operations Technician I

Date Mixed:

16-Feb-2022

Balance: B442140311

War lina Tossan Parlina Cowan - Operations Tech I

Date Passed: 21-Feb-2022

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

### General Certified Reference Material Notes

### **Expiration Notes:**

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

### **Purity Notes:**

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

### Certified Uncertainty Value Notes:

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

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

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
  www.restek.com/Contact-Us 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 <a href="https://www.restek.com/Contact-Us">www.restek.com/Contact-Us</a>.
- 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**

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #322201

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

110 Benner Circle

www.restek.com

### **Certificate of Analysis**





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

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

Catalog No. :	30470	Lot No.:	A0191703	_
Description:	tert-Butanol Standard			
	tert-Butanol Std 50,000µg/mL	, P&T Methanol, 1mL/an	pul	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	November 30, 2025	Storage:	0°C or colder	
		Shin:	Ambient	

### CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded U (95% C.L.; K			
1	tert-Butanol (TBA) CAS # 75-65-0 Purity 99%	(Lot 101619K21F-1)	50,122.0 μg/mL	+/- +/- +/-	293.4753 1,073.6797 1,104.8612	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed	
Solvent:	P&T Methanol  CAS # 67-56-1  Purity 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:

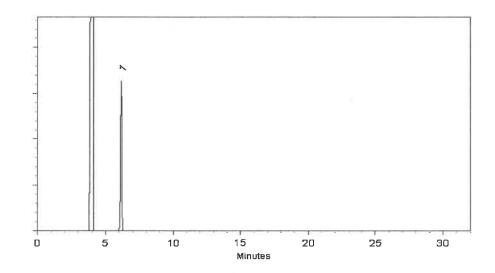
200°C

### 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.

Alicia Leathers - Operation Technician I

Date Mixed:

15-Nov-2022

Balance: 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

17-Nov-2022

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

### General Certified Reference Material Notes

### **Expiration Notes:**

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

### **Purity Notes:**

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

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

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

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

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
  www.restek.com/Contact-Us 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 <a href="https://www.restek.com/Contact-Us">www.restek.com/Contact-Us</a>.
- 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**









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### Certificate of Analysis

chromatographic plus

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

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

Catalog No.: 30067 Lot No.: A0191805

Description: 4-Bromofluorobenzene Standard

4-Bromofluorobenzene Standard 2,500µg/mL, P&T Methanol,

1mL/ampul

Container Size: 2 mL Pkg Amt: > 1 mL

Expiration Date: November 30, 2027 Storage: 0°C or colder

### 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

Ship:

**Ambient** 

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

### **Quality Confirmation Test**

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:

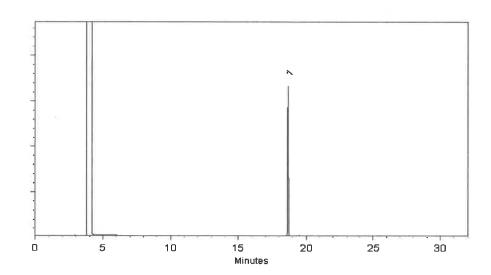
Det. Type:

Split Vent:

40 ml/min

Inj. Vol

 $1\mu$ l



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.

企大 Alicia Leathers - Operation Technician I

Date Mixed:

17-Nov-2022

Balance Serial #

B251644995

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

21-Nov-2022

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



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

### **Expiration Notes:**

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

### **Purity Notes:**

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

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

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

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

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

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

### Manufacturing Notes:

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

### **Handling Notes:**

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



8			



### **CERTIFIED REFERENCE MATERIAL**









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www.restek.com

### **Certificate of Analysis** chromatographic plus

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

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

Ambient

30225 Catalog No.: Lot No.: A0193071 **Description:** Bromochloromethane Standard Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul Container Size: Pkg Amt: > 1 mL **Expiration Date:** December 31, 2027 0°C or colder Storage: Ship:

### CERTIFIED VALUES

Elution Order	Compound ;	CAS#.	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Bromochloromethane	74-97-5	00008541	99%	2,018.0 μg/mL	+/- 113.3890

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

P&T Methanol

CAS# 67-56-1 Purity 99%



Solvent:

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:

Split Vent:

40 ml/min

Inj. Vol

1μا



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.

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
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  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
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  ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
  which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.













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## **Certificate of Analysis** 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.

Ambient

30225 Catalog No.: Lot No.: A0193071 **Description:** Bromochloromethane Standard Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul Container Size: Pkg Amt: > 1 mL **Expiration Date:** December 31, 2027 0°C or colder Storage:

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Bromochloromethane	74-97-5	00008541	99%	2,018.0 μg/mL	+/- 113.3890

Ship:

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

P&T Methanol

CAS# 67-56-1 Purity 99%

Solvent:

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:

Split Vent:

40 ml/min

Inj. Vol

1μا



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.

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

- 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
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  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.





Iac-MRA



ACCRED ISO 17034 Ac Reference Mater Certificate 4:





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# **Certificate of Analysis**

chromatographic plus

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

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

Catalog No.:

30006

Lot No.: A0193887

**Description:** 

VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10),

1mL/ampul

**Container Size:** 

2 mL

Pkg Amt:

nt: > 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

<sup>\*</sup> 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%

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

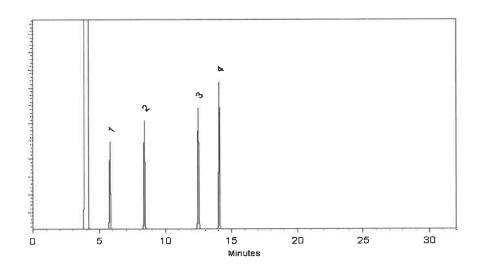
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

Josh McCloskey - Operations Technician I

Date Mixed:

24-Jan-2023

Balance Serial #

B707717271

Christie Mills - Operations Tech II - ARM QC

Date Passed:

27-Jan-2023



#### **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
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  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.





Iac-MRA



ACCRED ISO 17034 Ac Reference Mater Certificate 4:





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

www.restek.com

# **Certificate of Analysis**

chromatographic plus

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

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

Catalog No.:

30006

Lot No.: A0193887

**Description:** 

VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10),

1mL/ampul

**Container Size:** 

2 mL

Pkg Amt:

nt: > 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

<sup>\*</sup> 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%

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

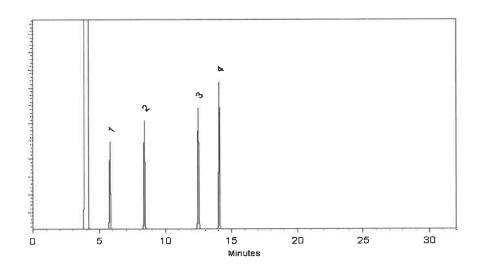
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

Josh McCloskey - Operations Technician I

Date Mixed:

24-Jan-2023

Balance Serial #

B707717271

Christie Mills - Operations Tech II - ARM QC

Date Passed:

27-Jan-2023



#### **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.













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## **Certificate of Analysis** chromatographic plus

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

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

Catalog No.:

30042

Lot No.: A0194279

Description:

502.2 Calibration Mix #1

502.2 Calibration Mix #1 2,000µg/mL, P&T Methanol, 1mL/ampul

Container Size: **Expiration Date:** 

October 31, 2029

Pkg Amt:

> 1 mL

Storage:

0°C or colder

Ship: **Ambient** 

#### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	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

<sup>\*</sup> 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

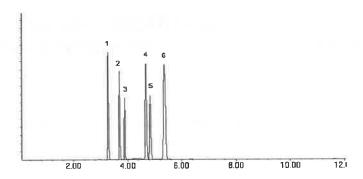
Det. Type: MSD

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.

Tom Suckar Mix Technician

Date Mixed:

03-Feb-2023

Balance Serial #

B707717271

Charle 1966

Christie Mills - Operations Tech II - ARM QC

Date Passed:

07-Feb-2023



#### **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
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  most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom
  ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
  which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.













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## **Certificate of Analysis** chromatographic plus

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

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

Catalog No.:

30042

Lot No.: A0194279

Description:

502.2 Calibration Mix #1

502.2 Calibration Mix #1 2,000µg/mL, P&T Methanol, 1mL/ampul

Container Size: **Expiration Date:** 

October 31, 2029

Pkg Amt:

> 1 mL

Storage:

0°C or colder

Ship: **Ambient** 

#### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	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

<sup>\*</sup> 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

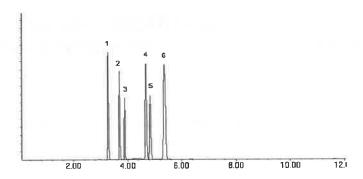
Det. Type: MSD

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.

Tom Suckar Mix Technician

Date Mixed:

03-Feb-2023

Balance Serial #

B707717271

Charle 1966

Christie Mills - Operations Tech II - ARM QC

Date Passed:

07-Feb-2023



#### **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.
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110 Benner Circle Bellefonte, PA 16823-8812

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

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

Catalog No.:

30489

Lot No.: A0196115

Description:

8260B Acetates Mix

8260B Acetates Mix 2,000 µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

Pkg Amt:

> 1 mL

**Expiration Date:** 

September 30, 2024

Storage:

-20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

#### CERTIFIED VALUES

Elution Order		Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Methyl acetate		79-20-9	SHBP3100	99%	2,013.7 μg/mL	+/- 69.6015
2	Vinyl acetate		108-05-4	RD220630	99%	2,020.0 μg/mL	+/- 69.8205
3	Ethyl acetate		141-78-6	SHBP9289	99%	2,019.3 μg/mL	+/- 69.7974
4	Isopropyl acetate		108-21-4	BCCG7069	99%	2,014.0 μg/mL	+/- 69.6131
5	Propyl acetate		109-60-4	TFFKL	99%	2,014.7 μg/mL	+/- 69.6361
6	Butyl acetate		123-86-4	SHBP6314	99%	2,014.0 μg/mL	+/- 69.6131
7	Amyl acetate		628-63-7	41325/1	97%	2,016.3 μg/mL	+/- 69.6928

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol

CAS# 67-56-1 Purity 99%

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this



reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

### **Quality Confirmation Test**

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

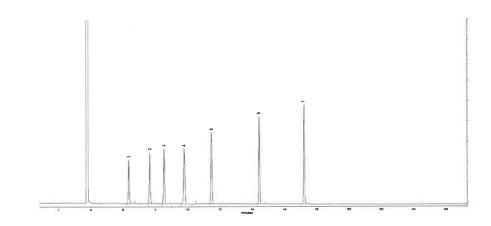
Det. Type:

FID

Split Vent:

40 ml/min Inj. Vol

1μΙ



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.

Bethany Lowery - Operations Tech I

Date Mixed:

21-Mar-2023

Balance Serial #

B251644995

7

Date Passed:

29-Mar-2023

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

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

Catalog No.:

30489

Lot No.: A0196115

Description:

8260B Acetates Mix

8260B Acetates Mix 2,000 µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

Pkg Amt:

> 1 mL

**Expiration Date:** 

September 30, 2024

Storage:

-20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

#### CERTIFIED VALUES

Elution Order		Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Methyl acetate		79-20-9	SHBP3100	99%	2,013.7 μg/mL	+/- 69.6015
2	Vinyl acetate		108-05-4	RD220630	99%	2,020.0 μg/mL	+/- 69.8205
3	Ethyl acetate		141-78-6	SHBP9289	99%	2,019.3 μg/mL	+/- 69.7974
4	Isopropyl acetate		108-21-4	BCCG7069	99%	2,014.0 μg/mL	+/- 69.6131
5	Propyl acetate		109-60-4	TFFKL	99%	2,014.7 μg/mL	+/- 69.6361
6	Butyl acetate		123-86-4	SHBP6314	99%	2,014.0 μg/mL	+/- 69.6131
7	Amyl acetate		628-63-7	41325/1	97%	2,016.3 μg/mL	+/- 69.6928

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol

CAS# 67-56-1 Purity 99%

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this



reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

### **Quality Confirmation Test**

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

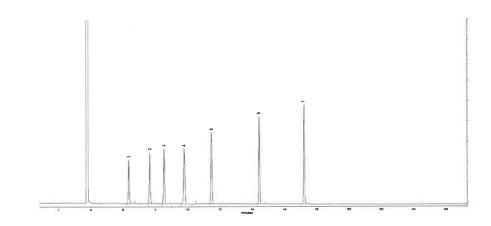
Det. Type:

FID

Split Vent:

40 ml/min Inj. Vol

1μΙ



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.

Bethany Lowery - Operations Tech I

Date Mixed:

21-Mar-2023

Balance Serial #

B251644995

7

Date Passed:

29-Mar-2023

#### **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
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  most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom
  ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
  which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.













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## **Certificate of Analysis** gravimetric

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

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

Catalog No.:

555582

Lot No.: A0196865

Description:

Custom 8260A/B Surrogate Mix

Custom 8260A/B Surrogate Mix 25,000µg/mL, P&T Methanol,

1mL/ampul

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

April 30, 2026

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Ship:

Ambient

#### CERTIFIED VALUES

Componen t#	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dichloroethane-d4	17060-07-0	PR-32845	99%	25,036.0 μg/mL	+/- 1,417.9179
2	1-Bromo-4-fluorobenzene (BFB)	460-00-4	184975	99%	25,132.0 μg/mL	+/- 1,423.3549
3	Dibromofluoromethane	1868-53-7	022013	99%	25,040.0 μg/mL	+/- 1,418.1445
4	Toluene-d8	2037-26-5	PR-33397	99%	25,028.0 μg/mL	+/- 1,417.4648

Solvent:

P&T Methanol

CAS#

67-56-1

**Purity** 

99%

Parker 7. Brown Russ Bookhamer - Operations Technician i

Date Mixed:

11-Apr-2023

Balance: 1127510105



#### **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.

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  the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
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  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
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  which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely
  dissolved.













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# **Certificate of Analysis**

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.: A0197644

Description:

502.2 Calibration Mix #1

502.2 Calibration Mix #1 2,000µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

Pkg Amt:

> 1 mL

**Expiration Date:** 

January 31, 2030

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%	2,001.6 μg/mL	+/- 112.7159
2	Chloromethane (methyl chloride)	74-87-3	SHBM9611	99%	2,002.0 μg/mL	+/- 112.7840
3	Vinyl chloride	75-01-4	00015559	99%	2,002.2 μg/mL	+/- 112.6713
4	Bromomethane (methyl bromide)	74-83-9	101604	99%	2,006.4 μg/mL	+/- 112.8861
5	Chloroethane (ethyl chloride)	75-00-3	107-401039114-1	99%	2,000.9 μg/mL	+/- 112.5990
6	Trichlorofluoromethane (CFC-11)	75-69-4	MKCL8411	99%	1,999.2 μg/mL	+/- 112.4861

<sup>\*</sup> 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

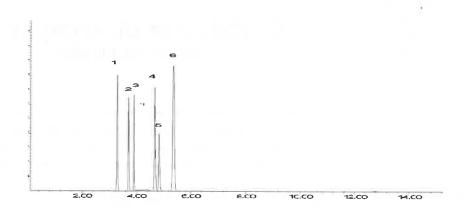
Det. Type: MSD

Split Vent:

Split ratio 10:1

Inj. Vol

1μΙ



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

Brittany Federinko - Operations Tech I

Date Mixed:

02-May-2023

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

08-May-2023



#### **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:**

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  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:**

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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.

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  the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
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- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely
  dissolved.





#### CERTIFIED REFERENCE MATERIAL







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# **Certificate of Analysis**

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

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

Catalog No.:

30489

Lot No.: A0199224

Description:

8260B Acetates Mix

8260B Acetates Mix 2,000 µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

Pkg Amt: > 1 mL

**Expiration Date:** 

December 31, 2024

-20°C or colder

Handling:

This product is photosensitive.

Storage:

Ship: On Ice

#### CERTIFIED VALUES

Elution Order	- Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Methyl acetate	79-20-9	SHBP3100	99%	2,015.0 μg/mL	+/- 69.6476
2	Vinyl acetate	108-05-4	RD220630	99%	2,014.3 μg/mL	+/- 69.6246
3	Ethyl acetate	141-78-6	SHBP9289	99%	2,012.7 μg/mL	+/- 69.5670
4	Isopropyl acetate	108-21-4	BCCG7069	99%	2,017.0 μg/mL	+/- 69.7168
5	Propyl acetate	109-60-4	KLOBM	99%	2,007.7 μg/mL	+/- 69.3942
6	Butyl acetate	123-86-4	SHBP6314	99%	2,014.3 μg/mL	+/- 69.6246
7	Amyl acetate	628-63-7	41325/1	97%	2,012.1 μg/mL	+/- 69.5475

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

Solvent:

P&T Methanol

CAS# 67-56-1

Purity 99%

#### Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this



reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

#### **Quality Confirmation Test**

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

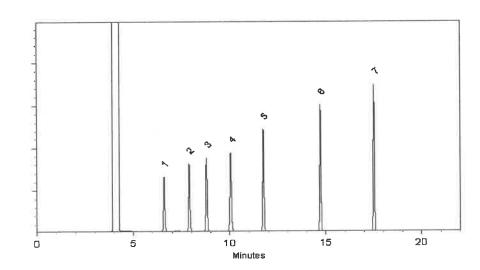
Det. Type:

Split Vent:

40 ml/min

Inj. Vol

 $1\mu l$ 



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:

22-Jun-2023

Balance Serial #

B251644995

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

26-Jun-2023

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

- 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
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  dissolved.





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

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

Catalog No.:

30006

Lot No.: A0200785

**Description:** 

VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10),

1mL/ampul

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

November 30, 2026

Pkg Amt:

> 1 mL

Storage: 0°C or colder

> Ship: **Ambient**

#### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Acetone	67-64-1	SHBP8774	99%	5,018.5 μg/mL	+/- 173.4162
2	2-Butanone (MEK)	78-93-3	SHBL5543	99%	5,016.0 μg/mL	+/- 173.3298
3	4-Methyl-2-pentanone (MIBK)	108-10-1	SHBP4724	99%	5,010.7 μg/mL	+/- 173.1455
4	2-Hexanone	591-78-6	MKCQ6663	99%	5,015.0 μg/mL	+/- 173.2952

Solvent:

P&T Methanol/Water (90:10)

CAS# 67-56-1/7732-18-5

**Purity** 99%

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

### **Quality Confirmation Test**

#### 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

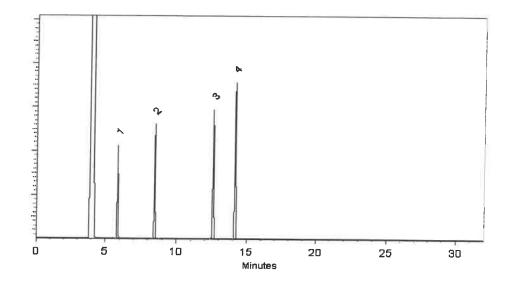
#### Det. Type:

#### Split Vent:

40 ml/min

#### Inj. Vol

1μΙ



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.

Laith Clemente - Operations Technician!

Date Mixed:

09-Aug-2023

Balance Serial #

B707717271

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

16-Aug-2023

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

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

Catalog No.:

30006

Lot No.: A0200785

**Description:** 

VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10),

1mL/ampul

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

November 30, 2026

Pkg Amt:

> 1 mL

Storage: 0°C or colder

> Ship: **Ambient**

#### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Acetone	67-64-1	SHBP8774	99%	5,018.5 μg/mL	+/- 173.4162
2	2-Butanone (MEK)	78-93-3	SHBL5543	99%	5,016.0 μg/mL	+/- 173.3298
3	4-Methyl-2-pentanone (MIBK)	108-10-1	SHBP4724	99%	5,010.7 μg/mL	+/- 173.1455
4	2-Hexanone	591-78-6	MKCQ6663	99%	5,015.0 μg/mL	+/- 173.2952

Solvent:

P&T Methanol/Water (90:10)

CAS# 67-56-1/7732-18-5

**Purity** 99%

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

### **Quality Confirmation Test**

#### 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

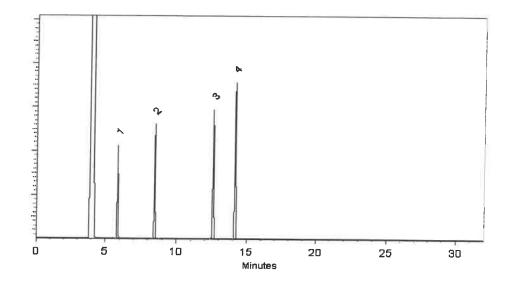
#### Det. Type:

#### Split Vent:

40 ml/min

#### Inj. Vol

1μΙ



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Laith Clemente - Operations Technician!

Date Mixed:

09-Aug-2023

Balance Serial #

B707717271

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

16-Aug-2023

#### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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#### **Purity Notes:**

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

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

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

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

Catalog No.:

30006

Lot No.: A0200785

**Description:** 

VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10),

1mL/ampul

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

November 30, 2026

Pkg Amt:

> 1 mL

Storage: 0°C or colder

> Ship: **Ambient**

#### CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Acetone	67-64-1	SHBP8774	99%	5,018.5 μg/mL	+/- 173.4162
2	2-Butanone (MEK)	78-93-3	SHBL5543	99%	5,016.0 μg/mL	+/- 173.3298
3	4-Methyl-2-pentanone (MIBK)	108-10-1	SHBP4724	99%	5,010.7 μg/mL	+/- 173.1455
4	2-Hexanone	591-78-6	MKCQ6663	99%	5,015.0 μg/mL	+/- 173.2952

Solvent:

P&T Methanol/Water (90:10)

CAS# 67-56-1/7732-18-5

**Purity** 99%

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

### **Quality Confirmation Test**

#### 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

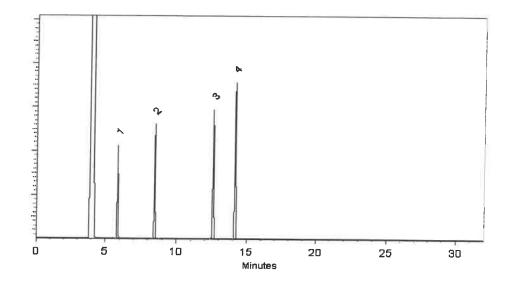
#### Det. Type:

#### Split Vent:

40 ml/min

#### Inj. Vol

1μΙ



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.

Laith Clemente - Operations Technician!

Date Mixed:

09-Aug-2023

Balance Serial #

B707717271

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

16-Aug-2023

#### **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.

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- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

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#### **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**









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

www.restek.com

## **Certificate of Analysis**

chromatographic

#### 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.:

555408-FL

Lot No.: A0205177

Description:

Custom Vinyl Acetate Standard

Custom Vinyl Acetate Standard 8,000µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

Pkg Amt: > 1 mL

**Expiration Date:** 

June 30, 2025

Storage: -20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Vinyl acetate	108-05-4	RP231030CTH	98%	8,047.8 μg/mL	+/- 278.1675

<sup>\*</sup> Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.



#### **Quality Confirmation Test**

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:

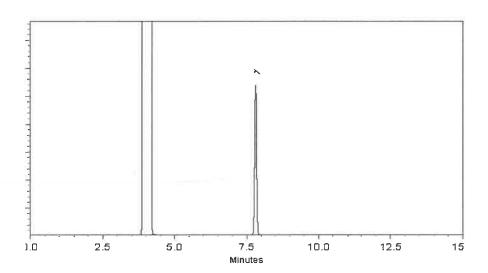
250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol 1µl



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

Tom Suckar - Mix Technician

Date Mixed:

06-Dec-2023

Balance Serial #

1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

11-Dec-2023

REAGNED Tyle bedan or Hellan by N. Net



#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

- 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.
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#### **CERTIFIED REFERENCE MATERIAL**









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

www.restek.com

# Certificate of Analysis

chromatographic

#### 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.:

555408-SL

Lot No.: A0205179

Description:

Custom Vinyl Acetate Standard

Custom Vinyl Acetate Standard 8,000µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

2 111L

Pkg Amt:

> 1 mL

**Expiration Date:** 

Handling:

June 30, 2025

Storage: -20°C or colder

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Vinyl acetate	108-05-4	RP231030CTH	98%	8,075.2 μg/mL	+/- 279.1159

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

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

#### Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

#### **Quality Confirmation Test**

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

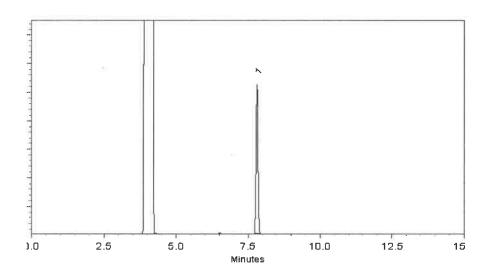
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

The state of the s

Daniel Wasson - Operations Tech I

Date Mixed:

06-Dec-2023

Balance Serial #

1127510105

Jennifer Poliino - Operations Tech III - ARM QC

Date Passed:

11-Dec-2023

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#### **Expiration Notes:**

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

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#### **CERTIFIED REFERENCE MATERIAL**









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

www.restek.com

# Certificate of Analysis

chromatographic

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Catalog No.:

555408-SL

Lot No.: A0205179

Description:

Custom Vinyl Acetate Standard

Custom Vinyl Acetate Standard 8,000µg/mL, P&T Methanol, 1mL/ampul

Container Size:

2 mL

2 111L

Pkg Amt:

> 1 mL

**Expiration Date:** 

Handling:

June 30, 2025

Storage: -20°C or colder

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Vinyl acetate	108-05-4	RP231030CTH	98%	8,075.2 μg/mL	+/- 279.1159

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

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

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@ 8°C/min. (hold 5 min.)

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200°C

Det. Temp:

250°C

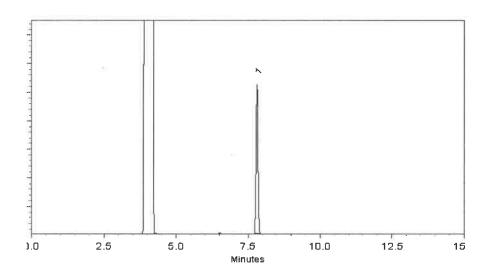
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

The state of the s

Daniel Wasson - Operations Tech I

Date Mixed:

06-Dec-2023

Balance Serial #

1127510105

Jennifer Poliino - Operations Tech III - ARM QC

Date Passed:

11-Dec-2023

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

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# Certificate of Analysis

gravimetric

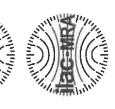


**CERTIFIED REFERENCE MATERIAL** 



enence Material Prod Certificate #3222.01





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

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

Lot No.: A0210184 555581 Catalog No.:

Custom 8260 Internal Standard Mix Description: Custom 8260 Internal Standard Mix 25,000µg/mL, P&T Methanol,

1mL/ampul

> 1 mL Pkg Amt: 2 mL Container Size:

Storage: April 30, 2027 **Expiration Date:** 

10°C or colder

Ambient

Ship:

VALUES CERTIFIED

Componen t#	Compound	CAS#	Lot#	Purity Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1 PR-30447	PR-30447	99% 25,212.0 μg/mL	+/- 1,427.8857
2	1,4-Difluorobenzene	540-36-3	MKCS8657	99% 25,220.0 µg/mL	+/- 1,428.3388
3	Chlorobenzene-d5	3114-55-4 PR-31132	PR-31132	99% 25,116.0 µg/mL	+/- 1,422.4487
4	Pentafluorobenzene	363-72-4	363-72-4 MKCR9383	99% 25,180.0 µg/mL	+/- 1,426.0734

P&T Methanol CAS# **Solvent:** 

67-56-1 %66 Purity

John Friedline - Operations Technician I Mr. T. Hi.

11-Apr-2024 Date Mixed:

Balance:

1127510105



# Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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- 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 ampuls are over-filled to ensure The packaged amount is the minimum sample size for which uncertainty is valid. that the minimum packaged amount can be sufficiently transferred.

# Manufacturing Notes:

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

# Handling Notes

- environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom 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 which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely



2 of 2



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

Part Number:

CERTIFIED WEIGHT REPORT

Lot Number:

Bromochloromethane 070122 Description:

Refrigerate (4 °C) 070127 1000 Recommended Storage: **Expiration Date:** 

Weight(s) shown below were combined and diluted to (mL): Nominal Concentration (µg/mL): NIST Test ID#:

0.0002 5E-05 25.0

Balance Uncertainty Flask Uncertainty

EC592-US Solvent: Methanol

Lot#

Gabriel Helland Formulated By:

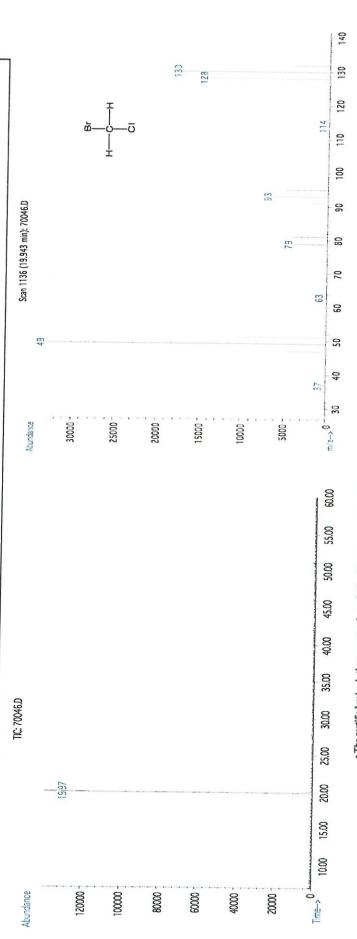
070122 DATE 070122 Pedro L. Rentas Reviewed By

DATE

(Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) CAS# Conc (ug/mL) (+/-) (ug/mL) Uncertainty Actual Weight(g) Actual Weight(g) Target Uncertainty Purity (%) Purity 8 Conc (µg/mL) Nominal Number AY01 ĕ RM# 46

Expanded

orl-rat 5000mg/kg Method GC6MSD-1.M: Column: (60m X 0.25mm X 1.5 μm) Temp 1 = 35°C (10min.), Temp 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector B= 200°C, Detector B = 220°C. Analyst: 200 ppm (1050mg/m3/8H) 74-97-5 5.7 1004.1 0.02540 0.02530 0.2 66 1000 Bromochloromethane Compound



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

Lot # 070122

#### Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



5E-05 Balance Uncertainty

#### Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

Part Number: <u>95317</u> Lot Number: <u>112921</u>

Description: Universal VOA Megambo 69 components

Expiration Date: 112924 Recommended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 8UTB Solvent(s): Methanol EA899-USQ2 Formulated By: DATE 112921 DATE

Weight(s) shown below were combine	d and diule	id to (mL):	100.0	0 0.012	Plask Uncertain	ty									10000 = 10000	
													Expanded		SDS Information	
Compound	(RM#) Part Numbs	Lot Ir Number	Dil. Factor	Initial	Initial	Nominal Communication	Purity	Purity	Uncertainty	Target	Actual	Actual	Uncertainty		ent Safety Info. On Attac	
- Delita Paris	T de C CONTRACT	. Armi loufe	PARTIE	voc (mc	( Conc.(ugmsL)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mL)	Weight(g)	Weight(g)	Conc (µg/mL)	(+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
. Acetonitrile	(0324)	080812	NA	NA	NA	2000	99.9	0.2	NA	0.20021	0.20032	2001.1	8.1	75-05-8	40 (20	
Altyl chloride (3-Chloropropene)	(0326)	102396	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20222	2001.9	8.2	107-05-1	40 ppm (70mg/m3/8H) 1 ppm (3mg/m3/8H)	orl-rat 2460mg
Carbon disulphide	(0000)	MKCD9604		NA	NA	2000	100	0.2	NA	0.20001	0.20015	2001,4	8.1	75-15-0	4 ppm (12mg/m3) (skin)	orl-red 1200mg
cts-1,4-Dichloro-2-butene	(1196)	14710EF		NA	NA	2000	95	0.2	NA	0,21054	0.21060	2000.6	8.5	1476-11-5		N/A
trans-1,4-Dichloro-2-butene		MKBP8041		NA	NA	2000	96.5	0.2	NA	0.20726	0.20736	2000.8	8.4	110-57-6	N/A	N/A
Diethyl ether (Ethyl ether) Ethyl methacrylate	(0153)	SHBK1918		NA	NA	2000	99.9	0.2	NA	0.20023	0.20025	2000.2	8.1	80-29-7	400ppm (1200mg/m3/6H)	orl-rat 1215mg
lodomethane	(0381)	06126PX SH8F8718\		NA NA	NA NA	2000	99	0.2	NA .	0.20203	0.20208	2000,5	8.2	97-63-2	RVA.	orl-rat 14800m
2-Methyl-1-propanol	(0445)	15241EB		NA	NA.	2000	99.5	0.2	NA NA	0.20101	0.20110	2000.8	8.1	74-88-4	5 ppm(29mg/m3/8H)(skin)	orl-rat 76mg/l
Methscrylonitrile	(0442)	00427ET	NA	NA	NA	2000	99	0.2	NA NA	0.20203	0.20122	2002.0	8.1	78-83-1 126-96-7	50 ppm (150mg/m3/6H)	orf-rat 2460mg
Methyl scryiate	(1075)	SHBK0679		NA	NA	2000	99.9	0.2	NA.	0.20021	0.20026	2000.5	8.1	96-33-3	1 ppm (3mg/m3/8H)(eldn)	orl-rat 120mg
Methyl methacrylate	(0404)	MKBW6137	V NA	NA	NA	2000	99.9	0.2	NA.	0.20021	0.20046	2002.4	8.1	80-62-6	10 ppm(35mg/m3/8H)(eldn) 100 ppm (410mg/m3/8H)	orl-rat 277mg orl-rat 7872mg
Nitrobenzene	(0228)	01213TV	NA.	NA	NA	2000	99	0.2	NA	0.20203	0.20231	2002.8	8.2	98-95-3	1 ppm (5mg/m3/8H)(skin)	ori-rat 750mg/
2-Nitropropane	(0461)	14002JX	NA.	NA	NA	2000	97.3	0.2	NA	0.20556	0.20562	2000.6	8.3	79-46-9	10 ppm (35mg/m3/8H)	orl-rai 720mg/
Pertachioroethane	(0450)	HGA01	NA	NA	NA	2000	98	0.2	NA	0.20409	0.20412	2000.3	8.2	76-01-7	N/A	N/A
1,1,2-Trichlorotrifluoroethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20213	2001.0	8.2	76-13-1	1900 ppm (7900mg/m3/8H)	
Bromodichioromethane Dibromochioromethane	35171	051121	0.05	5.00	40015.4	2000	NA	NA	0.017	NA.	NA	2000.7	18.4	75-27-4	NA	orl-rel 916mg/
cis-1,2-Dichloroethene	35171	051121	0.05	5.00	40042.8	2000	NA	NA	0.017	NA	NA.	2002.0	18.4	124-48-1	N/A	Orl-rat 848mg/
trans-1,2-Dichloroethene	35171	051121 051121	0.05	5,00	40003.1	2000	NA	NA NA	0.017	NA	NA	2000.1	18,4	156-69-2	N/A	N/A
Methylene chloride	35171	051121	0.05	5.00	40000.5	2000	NA NA	NA NA	0.017	NA	NA.	2000.3	18.4	156-60-5	N/A	orl-ret 1235mg
1,1-Dichlorosthene	32251	070721	0.10	10.00	20014.9	2000	NA NA	NA NA	0.017	NA.	NA	2001.0	18.4	75-09-2	500 ppm	orf-rat 620mg/
Bromoform	95321	010419	0.10	10.00	20001.7	2000	NA	NA	0.042	NA NA	NA NA	2001.4	19.3	75-35-4	ppm (4mg/m3/tti-t)	orl-rat 200mg/
Carbon tetrachloride	95321	010419	0.10	10.00	20001.3	2000	NA	NA	0.042	NA NA	NA NA	2000.1	19.3	75-25-2	0.6 ppm (5mg/m3) (skin)	orl-rat 933mg/
Chlorotorm	95321	010419	0.10	10.00	20001.8	2000	NA	NA	0.042	NA	NA.	2000.0	19.2	58-23-5 67-66-3	2 ppm (12.5mg/m3/8H)	orl-rat 2350mg
Dibromomethane	95321	010419	0.10	10.00	20001.7	2000	NA	NA NA	0.042	NA.	NA.	2000.1	19.3	74-95-3	50 ppm (240mg/m3) (CL)	orl-rat 908mg/
1,1-Dichloroethane	95321	010419	0.10	10.00	20000.8	2000	NA	NA	0.042	NA	NA NA	2000.0	19,3	75-34-3	N/A 100 ppm	orl-rat 108mg/
2,2-Dichloropropane	95321	010419	0.10	10,00	20002.1	2000	NA	NA	0.042	NA.	NA	2000.1	19.3	594-20-7	N/A	orl-rat 725mg/ N/A
Tetrachloroethene	95321	010418	0.10	10.00	20002.2	2000	NA	NA.	0.042	NA	NA	2000,1	19.3	127-18-4	25 ppm (170mg/m3/8H)(final)	
1,1,1-Trichloroethane	95321	010419	0.10	10.00	20001.7	2000	NA	NA	0.042	NA	NA	2000.1	19.3	71-65-6	350 ppm (1900mg/m3/8H)	orl-rat 10300mg
1,2-Dibromo-3-chloropropana	35161	102821	0.05	5.00	40006.0	2000	NA	NA	0.017	NA	NA	2000.2	18.4	98-12-8	0.001 ppm	orl-rat 170mg/s
1,2-Dibromoethane	35181	102821	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.5	18.4	108-93-4	20 ppm (6H)	orl-rail 108mg/k
1,2-Dichloroethane	35161	102821	0.05	5.00	40004.0	2000	NA	NA	0.017	NA	NA	2000.1	18.4	107-06-2	50 ppm (8H)	ori-rat 670mg/k
1,2-Dichloropropane 1,3-Dichloropropane	35161	102821	0.06	5.00	40016.9	2000	NA	NA	0.017	NA	NA	2000.7	18.4	78-87-5	76 ppm (360mg/m3/8H)	orl-ret 1947mg/
1,1-Dichloropropene	35161 35161	102821	0.05	5.00	40003.9 40005.9	2000	NA	NA	0.017	NA	NA NA	2000.1	18.4	142-28-9	N/A	unr-mus 3600mg
cis-1,3-Dichloropropene	35161	102821	0.05	5.00	40005.9	2000	NA NA	NA NA	0.017	NA	NA	2000.2		563-58-6	N/A	N/A
trans-1,3-Dichloropropene	35181	102821	0.05	5.00	40002.0	2000	NA NA	NA NA	0.017	NA NA	NA NA	2000.6		0061-01-5	N/A	N/A
Hexachloro-1,3-butadiene	35161	102821	0.05	5.00	40014.0	2000	NA	NA NA	0.017	NA NA	NA NA	2000.6	18,5 1 28,4	0061-02-0	N/A	N/A
1,1,1,2-Tetrachioroethane	35161	102821	0.06	5,00	40010.9	2000	NA	NA	0.017	NA	NA	2000.4		87-68-3 630-20-6	(HBI-Emilymy (0.24mg/m3/BH)	orl-rat 82mg/k
1,1,2,2-Tetrachioroethane	35161	102821	0.05	5.00	40015.0	2000	NA	NA	0.017	NA.	NA.	2000.7	18.4	79-34-5	5 ppm (35mg/m3/9H)(ekin)	ori-rat 670mg/s
1,1,2-Trichloroethane	35161	102821	0.05	5.00	40011.7	2000	NA	NA	0.017	NA	NA.	2000.5	18.4	79-00-5	10 ppm (45mg/m3/8H)(skin)	ori-rat 836mg/k
Trichicroethene	35161	102821	0.05	5.00	40003.3	2000	NA	NA	0.017	NA	NA	2000.1	18.4	79-01-6	50 ppm (270mg/m3/8H)	orl-mus 2402mg
,2,3-Trichloropropane	36161	102821	0,05	5.00	40005.2	2000	NA	NA	0.017	NA	NA	2000.2	18.4	96-18-4	10 ppm (60mg/m3/8H)	orl-rat 149.6mg
Benzene	35162	020821	0.05	5,00	40008.9	2000	NA	NA	0.017	NA	NA	2000.3	18.4	71-43-2	1 ppm	orl-rat 4894mg/
Sromobenzene	35162	020821	0.05	5.00	40019.0	2000	NA	NA	0.017	NA	NA	2000.9	18.4	108-86-1	N/A	orl-rat 2699mg/
n-Butyl benzens	35162	020821	0.05	5.00	40019.8		NA	NA	0.017	NA	NA	2000.9	18.4	104-51-8	NA	NA
Ethyl benzene - Isopropyl toluene	35162 35162	020821	0.05	5.00	40000.8		NA	NA	0.017	NA	NA	1999.9		100-41-4	100 ppm (435mg/m3/6H)	orl-ral >2000mg
Vaphthalene	36162	020621	0.05	5.00	40058.4		NA	NA	0.017	NA	NA	2002.7		99-07-6	N/A	orl-rat 4750mg/
Byrene	35182	020821	0.05		40005.1 40022.8		NA NA	NA NA	0.017	NA NA	NA NA	2000.2		91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/r
oluens	35162	020821	0.05		40008.9		NA NA	NA NA	0.017	NA NA	NA NA	2001.0		100-42-5	100 ppm	orl-rat 5000mg/
,2,3-Trichlorobenzene	35162	020821	0.05		40002.0		NA NA	NA NA	0.017	NA NA	NA NA	2000.0		106-68-3	200 ppm	orl-rat 5000mg/
.2,4-Trichlorobenzene	36162	020821	0.05		40027.4		NA.	NA.	0.017	NA NA	NA NA	2000.0		87-61-8 120-82-1	N/A	pr-mus 1390mg
,2,4-Trimethylbenzene	35162	020821	0.05		40012.4		NA	NA.	0.017	NA NA	NA NA	2000.5		95-63-6	8 ppm (CL) (40mg/m3) N/A	orl-rad 756mg/k
3,5-Trimethylbenzene	35162	020821	0.05	5.00	40011.5		NA	NA	0.017	NA	NA NA	2000.5		08-67-8	N/A	orl-rat 50/kg orl-rat 5000mg/
n-Xylene	35162	020821	0.05		40021.8		NA	NA	0.017	NA	NA.	2001.0		108-38-3	100 ppm (435mg/m3/6H)	ori-ret 5g/kg
ert-Butyl benzene	35163	022521	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	2000.2		98-06-8	N/A	N/A
ac-Butyl benzene		022521			40011.7	2000	NA	NA	0.017	NA	NA	2000.5		36-98-8	N/A	Advert 2240mm
hlorobenzene		022521			40009.0		NA	NA	0.017	NA	NA	2000.4		08-90-7	76 ppm (350mg/m3/8H)	ori-rat 2290mg/
-Chlorotoluene		022521			40002.0		NA	NA	0.017	NA	NA:	2000.0		95-49-6	60 ppm (250mg/m3/8H)	orl-rat 3900mg/
-Chiorotoluene		022521			40000.4		NA	NA	0.017	NA	NA	1999.9		06-43-4	N/A	orl-rat 2100mg/
,2-Dichlorobenzene		022521			40004.0		NA	NA	0.017	NA	NA	2000.1	18,4	95-50-1	50 ppm (300mg/m3) (CL)	orl-rat 600mg/k
3-Dichlorobenzene		022521			40003.6		NA.	NA	0.017	NA	NA	2000.1		41-73-1		pr-mue 1062mp
4-Dichlorobenzene		022521			40005.0		NA	NA	0.017	NA	NA	2000.2		06-48-7	75 ppm (450mg/m3/8H)	orl-ret 500mg/k
opropylbenzene Promithenzene					40007.4		NA.	NA	0.017	NA	NA .	2000.3		98-82-8	50 ppm (245mg/m3/8H)	orf-ret 1400mg/s
Propylbenzene					40004.6		AV		0.017	NA	NA	2000.1		03-65-1	N/A	orl-rat 6040mg/k
			0.05	5.00 4	40003.0	2000	A.F				810	7000 4		AC 47 A	AND THE COURT	
Xylene Xylene					40005.0		NA AV		0.017	NA NA	NA NA	2000.1		95-47-6 06-42-3	100 ppm (435mg/m3/8H)	ipr-mus 1364mg/

\* 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).

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\* Standards are certified (\*\*) 2-95 of the stated value, nations otherwise stated.

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

\* Uncertainty Reference: Taylor, ISA, and Koya, C.E., "Galledines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1397, U.S. Government Printing Office, Washington, DC. (1954).

#### PO Box 5585 Hamden, CT 06518-0585

Phone: 203-281-2917 FAX: 203-281-2922

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section | Product and Company Identification

**IDENTITY** ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC

Emergency Telephone USA & CANADA

1-800-535-5053

Address

44 Rossotto Dr.

**Emergency Telephone International** 

1-352-323-3500

Hamden CT, 06514

Date Prepared/Revised

January 1, 2022

Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H225

**Highly Flammable Liquid and Vapor** 

H301, 311, 331 Toxic if swallowed, skin contact, inhaled

H370 P271

Cause damage to organs

H351

Suspected of causing cancer

Use in ventilated area

P280

Use gloves, eye protection/face sheild

P302,332

If on skin, wash with soap and water

P305,351,338

If in eyes, remove contacts, rinse with water







Signal Word: DANGER

Section III - Composition

Components (Specific Chemical Identity; Common Name(s)) Methanol

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area. If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

If inhaled In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

If swallowed

Section V. FIREFIGHTING MEASURES

Flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from

heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media Protective equipment for fire

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of

ignition. Vapours accumulate to form explosive concentrations.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Clean up

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.

Storage Conditions

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - Physical/Chemical Characteristics

#### Absolute Standards Inc.

#### PO Box 5585 Hamden, CT 06518-0585

Phone: 203-281-2917 FAX: 203-281-2922

Boiling Point	65°C	Specific Gravity (H2O = 1)	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

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight.

Materials to avoid

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous 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.

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

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

IATA

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II Methanol Proper shipping name:

#### Section XV. REGULATORY INFORMATION

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. warrants that the chemical meets the specifications set forth on the label. 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.





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	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	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







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