

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

8900, Fax: 908 789 8922

#### **Prep Standard - Chemical Standard Summary**

Order ID :	Q2264
Test :	VOC-PP

Prepbatch ID:

Sequence ID/Qc Batch ID: VX061125,

04			ID	
Stan	lua	ra	ıv	

VP133174,VP133251,VP133887,VP133889,VP133935,VP133953,VP133978,VP133991,VP133996,VP133998,VP134142,VP134149,VP134151,VP134259,VP134260,VP134261,VP134263,VP134275,VP134276,VP134277,VP134316,VP134317,VP134318,VP134319,VP134320,VP134321,

#### Chemical ID:

V13391,V13450,V13583,V13584,V13706,V13822,V13920,V14127,V14180,V14290,V14427,V14432,V14435,V14503,V14504,V14525,V14526,V14580,V14613,V14620,V14624,V14626,V14636,V14637,V14638,V14639,V14668,V14671,V14673,V14675,V14711,V14717,V14718,V14721,V14749,V14750,V14793,V14811,V14812,V14843,V14885,V14921,V14929,V14944,V14945,V14946,V14947,V14949,V14950,W3112,





### **VOC STANDARD PREPARATION LOG**

ID N	NAME	NO.	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
617 82	3260 Surrogate, 400PPM	<u>VP133174</u>	02/27/2025	08/27/2025	Semsettin Yesilyurt	None	None	03/04/2025

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
466	624 Internal Standard and Surrogate Mix, 150PPM	<u>VP133251</u>	03/12/2025	07/02/2025	Semsettin Yesilyurt	None	None	03/21/2025

FROM 0.15000ml of V14580 + 0.15000ml of V14885 + 24.75000ml of V14624 = Final Quantity: 25.000 ml



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

Fax: 908 789 8922

#### **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
257	8260 Calibration Working STD Mix-First source, 160PPM	<u>VP133887</u>	05/12/2025	06/23/2025	Semsettin Yesilyurt	None	None	05/14/2025

**FROM** 

 $0.40000ml\ of\ V14843+1.00000ml\ of\ V14432+1.00000ml\ of\ V14435+1.00000ml\ of\ V14503+1.00000ml\ of\ V14504+1.00000ml\ of\ V14525+1.00000ml\ of\ V14526+1.00000ml\ of\ V14711+1.00000ml\ of\ V14717+1.00000ml\ of\ V14718+1.00000ml\ of\ V14721+1.00000ml\ of\ V14749+1.00000ml\ of\ V14750+1.00000ml\ of\ V14811+1.00000ml\ of\ V14812+10.60000ml\ of\ V14921=Final\ Quantity:\ 25.000\ ml$ 

Recipe ID	<u>NAME</u>	<u>NO.</u>	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>VP133889</u>	05/12/2025	06/22/2025	Semsettin Yesilyurt	None	None	05/14/2025

**FROM** 17.50000ml of V14921 + 2.50000ml of VP133887 = Final Quantity: 20.000 ml





### **VOC STANDARD PREPARATION LOG**

	Recipe ID 247	NAME 8260 Internal Standard, 250PPM	NO. VP133935	Prep Date 05/16/2025	Expiration Date 11/12/2025	Prepared By Semsettin Yesilyurt	ScaleID None	PipetteID None	Supervised By Mahesh Dadoda 05/21/2025
--	---------------------	--	-----------------	-------------------------	----------------------------	---------------------------------	-----------------	-------------------	--

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
218	BFB, 25PPM	<u>VP133953</u>	05/19/2025	11/09/2025	Semsettin Yesilyurt	None	None	05/21/2025

**FROM** 0.25000ml of V13391 + 24.75000ml of V14626 = Final Quantity: 25.000 ml





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

259 8260 Calibration Working STD	Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
	259		<u>VP133978</u>	05/15/2025	06/30/2025		None	None	05/27/2025

FROM 0.16000ml of V13450 + 0.80000ml of V13822 + 0.80000ml of V14127 + 0.80000ml of V14180 + 0.80000ml of V14427 + 0.80000ml of V14793 + 1.60000ml of V13920 + 4.24000ml of V14620 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
51	8260 Working STD (Acrolein) -first source, 800PPM	<u>VP133991</u>	05/22/2025	06/19/2025	Semsettin Yesilyurt	None	None	05/24/2025

FROM 1.00000ml of V14944 + 1.00000ml of V14945 + 1.00000ml of V14946 + 1.00000ml of V14947 + 21.00000ml of V14620 = Final Quantity: 25.000 ml



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

Fax: 908 789 8922

### **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
180	8260 Working STD (Acrolein)-First source, 100PPM	<u>VP133996</u>	05/22/2025	06/19/2025	Semsettin Yesilyurt	None	None	05/24/2025

<b>FROM</b>	17.50000ml of V14620 + 2.50000ml of VP133991	= Final Quantity: 20.000 ml
-------------	--	-----------------------------

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
263	8260 Working STD (Acrolein)-Second source,	<u>VP133998</u>	05/22/2025	06/17/2025	Semsettin Yesilyurt	None	None	05/24/2025

0.60000ml of V14950 + 1.00000ml of V14949 + 8.40000ml of V14620 = Final Quantity: 10.000 ml **FROM** 





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

Recipe ID 719	NAME  9260 Working STD (PCM) First	NO.	Prep Date 06/06/2025	Expiration Date 12/06/2025	Prepared By Semsettin	ScaleID None	<u>PipettelD</u> None	Supervised By Mahesh Dadoda	
7 19	8260 Working STD (BCM)-First source, 400PPM	<u>VP134142</u>	06/06/2025	12/06/2025	Yesilyurt	none	none	06/10/2025	
FROM	1.00000ml of V14668 + 1.00000ml of V14671 + 1.00000ml of V14673 + 1.00000ml of V14675 + 16.00000ml of V14929 = Final								

1.00000ml of V14668 + 1.00000ml of V14671 + 1.00000ml of V14673 + 1.00000ml of V14675 + 16.00000ml of V14929 = Final Quantity: 20.000 ml

Recipe ID	NAME.	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
1810	8260 Working Std(2-CVE)-800ppm	<u>VP134149</u>	06/06/2025	12/06/2025	Semsettin Yesilyurt	None	None	06/10/2025

**FROM** 1.00000ml of V14636 + 1.00000ml of V14637 + 1.00000ml of V14638 + 1.00000ml of V14639 + 46.00000ml of V14929 = Final Quantity: 50.000 ml





### **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
1812	8260 Working Std(2-CVE)-100ppm	<u>VP134151</u>	06/06/2025	12/06/2025	Semsettin Yesilyurt	None	None	06/10/2025

FROM	0.25000ml of V14639 + 24.75000ml of V14929 = Final Quantity: 25.000 m
------	---

Recipe				Expiration	<u>Prepared</u>			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
589	BFB TUNE CHECK	VP134259	06/11/2025	06/12/2025	John Carlone	None	None	
								06/12/2025

**FROM** 39.98400ml of W3112 + 0.01600ml of VP133953 = Final Quantity: 40.000 ml





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

Recipe ID 645	NAME 20 PPB CCC, 624	NO. VP134260	Prep Date 06/11/2025	Expiration Date 06/12/2025	Prepared By  John Carlone	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 06/12/2025	
FROM	ROM 39.97000ml of W3112 + 0.00500ml of VP133887 + 0.00500ml of VP133991 + 0.00500ml of VP134149 + 0.00800ml of								

39.97000ml of W3112 + 0.00500ml of VP133887 + 0.00500ml of VP133991 + 0.00500ml of VP134149 + 0.00800ml of VP134149 + 0.008000ml of VP134149 + 0.0080000ml of VP134149 + 0.008000000VP133251 = 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
645	20 PPB CCC, 624	<u>VP134261</u>	06/11/2025	06/12/2025	John Carlone	None	None	
								06/12/2025

**FROM** 39.97000ml of W3112 + 0.00500ml of VP133887 + 0.00500ml of VP133991 + 0.00500ml of VP134149 + 0.00800ml of VP133251 = Final Quantity: 40.000 ml





### **VOC STANDARD PREPARATION LOG**

1817 8260 Working Std(2-CVE)-SS, VP134263 06/11/2025 11/12/2025 Semsettin Yesilyurt None None 06/12/2025	E	Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Mahesh Dadoda
		1817	3 , ,	<u>VP134263</u>	06/11/2025	11/12/2025		None	None	06/12/2025

FROM	0.60000ml of V13584 + 1.00000ml of V13583 + 18.40000ml of V14921  = Final Quantity: 20.000	ml

Recipe ID	NAME	NO	Prep Date	Expiration	<u>Prepared</u> By	ScaleID	DinettelD	Supervised By
589	<del></del>	NO. VP134275	06/11/2025	<u>Date</u> 06/12/2025	John Carlone	None	PipetteID None	Mahesh Dadoda
								06/12/2025

**FROM** 39.98400ml of W3112 + 0.01600ml of VP133953 = Final Quantity: 40.000 ml





**FROM** 

#### **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
620	50 PPB CCC, 8260-Water	<u>VP134276</u>	06/11/2025	06/12/2025	John Carlone	None	None	06/12/2025

39.94450ml of W3112 + 0.00500ml of VP133174 + 0.00500ml of VP134142 + 0.00800ml of VP133935 + 0.01250ml of VP133887 + 0.01250ml of VP133991 + 0.01250ml of VP134149 = Final Quantity: 40.000 ml

Recipe				Expiration	<u>Prepared</u>			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>VP134277</u>	06/11/2025	06/12/2025	John Carlone	None	None	
								06/12/2025

FROM 39.94450ml of W3112 + 0.00500ml of VP133174 + 0.00500ml of VP134142 + 0.00800ml of VP133935 + 0.01250ml of VP133887 + 0.01250ml of VP133991 + 0.01250ml of VP134149 = Final Quantity: 40.000 ml





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

Recipe ID	NAME_	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Amit Patel
637	5 PPB ICC, 624	<u>VP134316</u>	06/10/2025	06/11/2025	John Carlone	None	None	
								06/13/2025
FROM	39.96200ml of W3112 + 0.00800ml o	f VP133251	+ 0.01000ml	of VP133889 -	+ 0.01000ml of \	/P133996 + 0.0	1000ml of	

39.96200ml of W3112 + 0.00800ml of VP133251 + 0.01000ml of VP133889 + 0.01000ml of VP133996 + 0.01000ml of VP134151 = Final Quantity: 40.000 ml

Recipe				Expiration	<u>Prepared</u>			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Amit Patel
639	20 PPB ICC, 624	<u>VP134317</u>	06/10/2025	06/11/2025	John Carlone	None	None	
								06/13/2025

**FROM** 39.97000ml of W3112 + 0.00500ml of VP133887 + 0.00500ml of VP133991 + 0.00500ml of VP134149 + 0.00800ml of VP133251 = Final Quantity: 40.000 ml





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

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Amit Patel
640	50 PPB ICC, 624	<u>VP134318</u>	06/10/2025	06/11/2025	John Carlone	None	None	
								06/13/2025

FROM 39.95450ml of W3112 + 0.00800ml of VP133251 + 0.01250ml of VP133887 + 0.01250ml of VP133991 + 0.01250ml of VP134149 = Final Quantity: 40.000 ml

Recipe				Expiration	<u>Prepared</u>			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Amit Patel
642	100 PPB ICC, 624	<u>VP134319</u>	06/10/2025	06/11/2025	John Carlone	None	None	
								06/13/2025

FROM 39.91700ml of W3112 + 0.00800ml of VP133251 + 0.02500ml of VP133887 + 0.02500ml of VP133991 + 0.02500ml of VP134149 = Final Quantity: 40.000 ml





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

Recipe ID	NAME_	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Amit Patel
643	150 PPB ICC, 624	VP134320	06/10/2025	06/11/2025	John Carlone	None	None	
								06/13/2025
FROM	39.87950ml of W3112 + 0.00800ml o	f VP133251	+ 0.03750ml	of VP133887 -	+ 0.03750ml of \	/P133991 + 0.0	3750ml of	

39.87950ml of W3112 + 0.00800ml of VP133251 + 0.03750ml of VP133887 + 0.03750ml of VP133991 + 0.03750ml of VP13391 + 0.03750ml of VP133991 + 0.03750ml of VP13991 + 0.03750ml of VP13991 + 0.03750ml of VP13991 + 0.03750ml of VP1391 + 0.03750ml of VP1391 + 0.03750ml of VP1391 + 0.03750ml of VP1391 + 0.03750VP134149 = Final Quantity: 40.000 ml

Recipe				Expiration	<u>Prepared</u>			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Amit Patel
644	20 PPB ICV, 624	<u>VP134321</u>	06/10/2025	06/11/2025	John Carlone	None	None	
								06/13/2025

39.97000ml of W3112 + 0.00500ml of VP133978 + 0.00500ml of VP133998 + 0.00500ml of VP134263 + 0.00800ml of **FROM** VP133251 = Final Quantity: 40.000 ml



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30067 / BFB tuneing solution	A0191805	11/22/2025	11/22/2024 / SAM	01/13/2023 / SAM	V13391
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0191703	11/15/2025	05/15/2025 / SAM	01/23/2023 / SAM	V13450
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	11/17/2025	06/11/2025 / SAM	01/30/2023 / SAM	V13583
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	111722	11/17/2025	06/11/2025 / SAM	01/30/2023 / SAM	V13584
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	02/27/2026	02/27/2025 / SAM	04/12/2023 / SAM	V13706
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, 2000ug/ml, PTM, 1ml	A0197644	09/30/2025	03/31/2025 / SAM	05/31/2023 / SAM	V13822



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	11/15/2025	05/15/2025 / SAM	07/24/2023 / SAM	V13920
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	09/30/2025	03/31/2025 / SAM	01/17/2024 / SAM	V14127
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)	021524	09/30/2025	03/31/2025 / SAM	02/20/2024 / SAM	V14180
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	A0210184	12/12/2025	12/12/2024 / SAM	04/15/2024 / SAM	V14290
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	A0205013	06/30/2025	05/15/2025 / SAM	08/15/2024 / SAM	V14427
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0209618	09/30/2025	05/12/2025 / SAM	08/15/2024 / SAM	V14432



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	A0209618	09/20/2025	03/20/2025 / SAM	08/15/2024 / SAM	V14435
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	11/12/2025	05/12/2025 / SAM	09/17/2024 / SAM	V14503
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624	11/12/2025	05/12/2025 / SAM	09/17/2024 / SAM	V14504
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	091724	11/12/2025	05/12/2025 / SAM	09/18/2024 / SAM	V14525
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	091724	11/12/2025	05/12/2025 / SAM	09/18/2024 / SAM	V14526
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	555584 / Custom Standard, CLP VOA SurrogateStd [CS 5179-4]	A0219012	01/02/2026	01/02/2025 / SAM	11/18/2024 / SAM	V14580



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	08/27/2025	02/27/2025 / SAM	11/26/2024 / SAM	V14613
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	10/25/2025	05/09/2025 / SAM	11/26/2024 / SAM	V14620
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	2310762004	07/13/2025	01/13/2025 / SAM	11/26/2024 / SAM	V14624
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	2310762004	11/09/2025	05/09/2025 / SAM	11/26/2024 / SAM	V14626
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Supplier  Absolute Standards, Inc.	ItemCode / ItemName / 2-Chloroethyl vinyl ether	Lot # 120524	-	=		
Absolute			Date	Opened By 06/06/2025 /	Received By 12/06/2024 /	Lot #



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ 2-Chloroethyl vinyl ether	120524	12/06/2025	06/06/2025 / SAM	12/06/2024 / SAM	V14638
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ 2-Chloroethyl vinyl ether	120524	12/06/2025	06/06/2025 / SAM	12/06/2024 / SAM	V14639
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	A0214960	12/06/2025	06/06/2025 / SAM	12/09/2024 / SAM	V14668
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	A0214960	12/06/2025	06/06/2025 / SAM	12/09/2024 / SAM	V14671
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	A0214960	12/06/2025   06/06/2025 / SAM		12/09/2024 / SAM	V14673
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	A0214960	12/06/2025	06/06/2025 / SAM	12/09/2024 / SAM	V14675



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	11/12/2025	05/12/2025 / SAM	12/17/2024 / SAM	V14711
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	11/12/2025	05/12/2025 / SAM	12/17/2024 / SAM	V14717
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	11/12/2025	05/12/2025 / SAM	12/17/2024 / SAM	V14718
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	11/12/2025	05/12/2025 / SAM	12/17/2024 / SAM	V14721
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0216826	11/13/2025	05/12/2025 / SAM	12/17/2024 / SAM	V14749
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	A0216826	11/12/2025	05/12/2025 / SAM	12/17/2024 / SAM	V14750



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	A0220563	06/30/2026	05/15/2025 / SAM	01/08/2025 / SAM	V14793
	LOTS			T		
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	A0220471	11/12/2025	05/12/2025 / SAM	01/08/2025 / SAM	V14811
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	A0220471	06/30/2026	05/12/2025 / SAM	01/08/2025 / SAM	V14812
	LOTS					I
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	A0217535	11/12/2025	05/12/2025 / SAM	01/21/2025 / SAM	V14843
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	555583 / Custom Standard, CLP VOA Internal Std [CS 5179-3]	A0223136	03/12/2026	03/12/2025 / SAM	03/12/2025 / SAM	V14885
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)	24G0262002	11/12/2025	05/12/2025 / SAM	05/09/2025 / SAM	V14921



Supplier	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)	24G0262002	12/06/2025	06/06/2025 / SAM	05/09/2025 / SAM	V14929
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	051925	06/19/2025	05/22/2025 / SAM	05/21/2025 / SAM	V14944
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	051925	06/19/2025	05/22/2025 / SAM	05/21/2025 / SAM	V14945
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	051925	06/19/2025	05/22/2025 / SAM	05/21/2025 / SAM	V14946
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	051925	06/19/2025	05/22/2025 / SAM	05/21/2025 / SAM	V14947
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	051725	06/17/2025	05/22/2025 / SAM	05/21/2025 / SAM	V14949



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	051725	06/17/2025	05/22/2025 / SAM	05/21/2025 / SAM	V14950

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





Material No.: 9077-02

Batch No.: 2310762004

Manufactured Date: 2023-08-11 Expiration Date: 2026-08-10

Revision No.: 0

# Certificate of Analysis

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

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

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC

Ken Koehnlein

Sr. Manager, Quality Assurance





Material No.: 9077-02

Batch No.: 2310762004

Manufactured Date: 2023-08-11 Expiration Date: 2026-08-10

Revision No.: 0

# Certificate of Analysis

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

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

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC

Ken Koehnlein

Sr. Manager, Quality Assurance





Material No.: 9077-02

Batch No.: 22L0562016 Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

# Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrable Base (µeq/g)	≤ 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

Packaging Site: Phillipsburg Mfg Ctr & DC







Material No.: 9077-02

Batch No.: 22L0562016 Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

# Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrable Base (µeq/g)	≤ 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

Packaging Site: Phillipsburg Mfg Ctr & DC



#### 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	וסן		
				Flask Uncertainty	150.0	100.0	ed to (mL):	tulib bas b	Weight(s) shown below were combined
Jedu Jean 10162	Reviewed		J	gmistroon[] sonslæff	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.etteT-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	elininoigor	346	1395468	20000	66	S.0	170S0.S	2.02150	8.7000\$	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	gs/g4 tsr-no
·Z	Метһуісусіоһехале	1627	Veelopahs	2000	66	S.0	70S0S.0	0.20230	2002.3	2.8	S-78-801	A/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	(nbis)(H8/Em/gm0e) mqq 3S	рАрт00√г гит-ho
.4	Oi-isopropyl ether (DIPE)	<b>Z86</b>	00412MX	2000	66	S.0	70202.0	0.20227	2002.0	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	2.1002	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 ellebrane	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 THE S	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	T c	f	200000
(.nim)	əmsi							_	2244-346			Ì	3000000
TA G2M									2001100			1	0000000
									Colitations			at the same of the	3200000
									Ī			ar fundi	0000020
	·(ACCI) 'nor 'nordina	nt Printing Office, Was	animayoo .e.	n '7671 mm	r recument	E CTAT						1	4000000
MIST Measurement	for Evaluating and Expressing the Uncertainty or							3	8 9 2			-	000000
	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: 021524 Description: Universal VOA Megamix 69 components

Solvent(s): Lot# Methenol EG359-USQ12

Expiration Date: 021527 Recommended Storage: Freezer (0 °C)
iominal Concentration (ug/mL): 2000
NIST Test ID#: 8UTB

5E-05 Balance Uncertalisty

./	hui fo fui	021524
Formulated By:	Mario Luis	DATE
H	de tento	021524
Reviewed By:	Pedro L. Rentas	DATE

	NIST Test ID	#: BUTB			5E-05	Balance Uncerta	listy							KEVIEWEG	ву.	FOUIO L. Norlias	DATE
	Weight(s) shown below were combine	d and dilute (RM#)	d to (mL):	100.0 Dit.	0.021	Flask Uncertaint	ly Nominal	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information nt Safety Info. On Attach	
	Compound	Part Numbe	w Number	Factor	Vol. (mL)	Conc.(ug/mL)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mL)	Weight(g)	Weight(g)	Conc (µg/mL)	(+/-) (ug/mL)	CAS#	OSHA PEL (TWA)	LD50
1.	Acetonitrile	(0324)	021644	NA	NA	NA	2000	99.99	0.2	NA	0.20007	0.20022	2001.5	8.1	75-05-8	40 ppm (70mg/m3/8H)	orf-rat 2480mg/kg
2.		(0325)	102396	NA	NA	NA	2000	99	0.2	NA	0.20207	0.20222	2001.5	8.2	107-05-1	1 ppm (3mg/m3/8H)	orl-ret 700mg/kg
3.	Carbon disulphide	(0060)	MKCR8561	NA	NA	NA	2000	99.99	0.2	NA	0.20007	0.20020	2001.3	8.1	75-15-0	4 ppm (12mg/m3) (skin)	orl-rat 1200mg/kg
4.	cis-1,4-Dichloro-2-butene	(1196)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058	0.21060	2000.2	8.5	1478-11-5	N/A	N/A N/A
5.		(0486)	MKBP6041V	NA	NA	NA	2000	96.5	0.2	NA	0.20731	0.20734	2000.3	8.4	110-57-6 80-29-7	N/A N/A	N/A
6.		(0153)	IK1BCAS0000		NA	NA	2000	99.9	0.2	NA NA	0.20025	0.20231	2002.4	8.2	97-63-2	N/A	orl-rat 14800mg/kg
7.		(0381)	06126PX SHBF8718V	NA NA	NA NA	NA NA	2000	99.5	0.2	NA NA	0.20106	0.20118	2001.2	8.1	74-88-4	5 ppm(26mg/m3/6H)(skin)	orl-rat 75mg/kg
8.		(0489)	15241EB	NA	NA.	NA.	2000	99.5	0.2	NA.	0.20108	0.20120	2001.4	8.1	78-83-1	50 ppm (150mg/m3/8H)	orl-ret 2460mg/kg
10.	2-Methyl-1-propanol Methacrylonitrile	(0442)	00427ET	NA	NA.	NA	2000	99	0.2	NA	0.20207	0.20209	2000.2	8.2	126-96-7	1 ppm (3mg/m3/8H)(sldn)	orl-rat 120mg/kg
11.		(1075)	SHBK0679	NA	NA	NA.	2000	99.9	0.2	NA	0.20025	0.20042	2001.7	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	orl-ret 277mg/kg
12.			MKBW5137V	NA	NA	NA	2000	99.9	0.2	NA	0.20025	0.20030	2000.5	8.1	80-62-6	100 ppm (410mg/m3/8H)	orl-rat 7872mg/kg
13.		(0228)	01213TV	NA	NA	NA	2000	89	0.2	NA	0.20207	0.20230	2002.3	8.2	98-95-3	1 ppm (5mg/m3/8H)(skin)	orl-rat 780mg/kg
14.	2-Nitropropane	(0461)	14002JX	NA	NA	NA .	2000	97.3	0.2	NA	0.20560	0.20670	2001.0	8.3	79-46-9	10 ppm (35mg/m3/8H)	orl-rat 720mg/kg
15.	Pentachtoroethana	(0450)	HGA01	NA	NA	NA	2000	98	0.2	NA	0.20413	0.20415	2000.2	8.3	76-01-7	N/A	N/A
16.	1,1,2-Trichlorotrifluoroethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA	0.20207	0.20210	2000.3	8.2 22.9	76-13-1 75-27-4	1000 ppm (7600mg/m3/6H) N/A	orl-rat 43g/kg orl-rat 916mg/kg
17.	Bromodichloromethane	35171	101623	0.05	6.00	40001.7	2000	NA	NA	0.017	NA NA	NA NA	1999.6	23.0	124-48-1	N/A	ori-rat 848mg/kg
18.	Dibromoch/oromethane	35171	101623	0.05	5.00	40002.1	2000	NA	NA NA	0.017	NA NA	NA NA	1999.6	22.9	156-59-2	N/A	N/A
19.		35171	101823	0.05	5.00	40003.1	2000	NA NA	NA.	0.017	NA NA	NA NA	1999.6	23.0	158-60-5	N/A	orl-rat 1235mg/kg
20.	trans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA NA	NA NA	0.017	NA NA	NA NA	1999.6	22.9	75-09-2	500 ppm	orl-rat 820mg/kg
21.		35171	101823	0.05	10.00	40002.8 20001.6	2000	NA NA	NA NA	0.017	NA.	NA NA	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat 200mg/kg
22,		32251 95321	020724	0.10	10.00	20001.8	2000	NA.	NA.	0.042	NA NA	NA.	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	orl-ret 933mg/kg
23. 24.	Bromoferm Carbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1909.B	20.4	56-23-6	2 ppm (12.6mg/m3/8H)	ori-rat 2350mg/kg
25.	Chloroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-66-3	50 ppm (240mg/m3) (CL)	orl-ret 906mg/kg
26.	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	orf-rat 106mg/kg
27.		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 725mg/kg
28.	2,2-Dichloropropane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	N/A	NA
29.	Tetrachloroethene	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/m3/6H)(final)	orl-rat 2629mg/kg
30.	1,1,1-Trichloroethane	95321	020724	0.10	10.00	20003.0	2000	NA	NA	0.042	NA	NA	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/6H)	orl-ret 10300mg/kg
31.	1,2-Dibromo-3-chioropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA	2000.3	22.9	96-12-8	0.001 ppm	orl-rat 170mg/kg
32.	1,2-Dibromoethane	36161	112322	0.05	5.00	40024.6	2000	NA	NA	0.017	NA	NA.	2000.7	22.9	108-83-4	20 ppm (8H)	orf-ret 108mg/kg
33.	1,2-Dichloroethane	35161	112322	0.05	5.00	40018.0	2000	NA	NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	ori-rat 670mg/kg
34.	1,2-Dichloropropane	35161	112322	0.05	5.00	40051.0	2000	NA	NA	0.017	NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8H)	ori-ral 1947/mg/kg unr-mus 3600/mg/kg
35.		35161	112322	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA .	1999.8	22.9	142-28-9 563-56-6	N/A N/A	N/A
36.		35161	112322	0.05	5.00	40012.1	2000	NA	NA NA	0.017	NA NA	NA NA	2000.0	23.0	10081-01-6	N/A	N/A
	cis-1,3-Dichloropropene	35161	112322	0.05	5.00	40010.0	2000	NA	NA NA	0.017	NA NA	NA NA	2000.4	23.0	10061-02-6	N/A	N/A
38.		35161	112322	0.05	5.00	40017.6	2000	NA NA	NA	0.017	NA	NA NA	2000.4	29.7	87-68-3	0.02 ppm (0.24mg/m3/8H)	orl-rat 82mg/kg
39.	Hexachloro-1,3-butadiene	35161 35161	112322	0.05	5.00	40011.9	2000	NA	NA NA	0.017	NA	NA.	2000.1	22.9	630-20-6	N/A	orl-ret 670mg/kg
40.	1,1,2-Tetrachloroethane 1,1,2-Tetrachloroethane	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)(skin)	ori-rat 800mg/kg
42.	1,1,2-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 (45mg/m3/8H)(sldn)	orl-rat 836mg/kg
43.	Trichloroethene	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/m3/8H)	orl-mus 2402mg/kg
44.	1,2,3-Trichloropropane	35161	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)	orl-rat 149.flmg/kg
45.	- Andrews and the Control of the Con	35162	050823	0.05	5,00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	ort-rat 4894mg/kg
46.	Bromobenzene	35162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-86-1	N/A	orl-ret 2999mg/kg
47.		35162	050823	0.05	5.00	40003.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	104-51-8	N/A	N/A
48.	Ethyl benzene	35162	050823	0.05	5.00	40004.8	2000	NA	NA NA	0.017	NA	NA NA	1999.7	22.9	100-41-4	100 ppm (435mg/m3/8H)	orl-rat >2000mg/kg
49.	p-isopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA NA	NA NA	1999.8	22.9	99-87-8	NA 10 ppm (50mg/m3/8H)	ori-rat 4750mg/kg ori-rat 490mg/kg
50.	Naphthalene	35162	050823	0.05	5,00	40006.2	2000	NA	NA NA	0.017	NA NA	NA NA	1999.8	22.9	100-42-5	10 ppm (somgmisites)	ori-rat 5000mg/kg
51,	Styrene	35162	050823	0.05	5.00	40004.8	2000	NA NA	NA NA	0.017	NA NA	NA NA	1999.8	22.9	108-88-3	200 ppm	orl-rat 5000mg/kg
50		00400	050823	0.05	5.00	40006.2	2000	NA NA	NA NA	0.017	NA NA	NA.	1999.7	22.9	87-61-6	N/A	ipr-mus 1390mg/kg
52.	Toluene	35162		A OF		700003.1			NA NA	0.017	NA NA	NA.	1999.8	22.9	120-82-1	5 ppm (CL) (40mg/m3)	ori-rat 756mg/kg
63.	1,2,3-Trichlorobenzene	35162	050823	0.05		40008.8	2000										
53. 54.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene	35162 35162	050823 050823	0.05	5.00	40006.8 40001.6	2000	NA NA				NA	1999.6	23.0		N/A	ori-rat 5g/kg
53. 54. 55.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	35162 35162 35162	050823 050823 050823	0.05	5.00 5.00	40001.6	2000	NA	NA NA	0.017	NA NA				95-63-6 108-67-8		ori-rat 5g/kg ori-rat 5000mg/kg
53. 54. 55. 56.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	35162 35162 35162 35162	050823 050823 050823 050823	0.05 0.05 0.05	5.00 5.00 5.00	40001.6 40006.7			NA	0.017	NA	NA	1999.6	23.0	95-63-6	N/A	
53. 54. 55. 56. 57.	1,2,3-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene	35162 35162 35162 35162 35162	050823 050823 050823	0.05	5.00 5.00	40001.6	2000 2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.8	23.0 22.9	95-63-6 106-67-8	N/A N/A	orl-rat 5000mg/kg
53. 54. 55. 56. 57. 58.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene	35162 35162 35162 35162	050823 050823 050823 050823 050823	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40001.6 40006.7 40005.8	2000 2000 2000	NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA NA	NA NA NA NA	1999.6 1999.8 1999.8 1999.6	23.0 22.9 22.9 22.9 22.9	96-63-6 106-67-8 106-36-3 98-06-6 135-96-8	N/A N/A 100 ppm (435ing/m3/8H) N/A N/A	orl-rat 5000mg/kg orl-rat fig/kg NVA orl-rat 2240mg/kg
53. 54. 55. 56. 57. 58. 59.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl berizene sec-Butyl berizene	35162 35162 35162 35162 35162 35163	050823 050823 050823 050823 050823 101923	0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2	2000 2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA	NA NA NA NA	1999.8 1999.8 1999.8 1999.6 1999.6 1999.7	23.0 22.9 22.9 22.9 22.9 22.9	95-63-5 108-67-8 108-38-3 98-06-6 135-96-8 108-90-7	N/A N/A 100 ppm (435mg/m3/8H) N/A N/A N/A 75 ppm (350mg/m3/8H)	orl-rat 5000mg/kg orl-rat 5g/kg N/A orl-rat 2240mg/kg orl-rat 2290mg/kg
53. 54. 55. 58. 57. 58. 59.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene	35162 35162 35162 35162 35162 35163 35163	050823 050823 050823 050823 050823 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA	NA NA NA NA NA	1999.8 1999.8 1999.8 1999.6 1999.6 1999.7 1999.7	23.0 22.9 22.9 22.9 22.9 22.9 22.9	96-63-6 108-67-8 108-38-3 98-06-6 135-96-8 108-90-7 95-49-8	N/A N/A 100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H)	orl-rat 5000mg/kg orl-rat 5g/kg NVA orl-rat 2240mg/kg orl-rat 2290mg/kg orl-rat 3900mg/kg
53. 54. 55. 56. 57. 58. 59. 61.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene soo-Butyl benzene Chlorobenzene	35162 35162 35162 35162 35162 35163 35163 35163	050823 050823 050823 050823 050823 060823 101923 101923	0.05 0.05 0.05 0.05 0.06 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA	NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA	NA NA NA NA NA NA	1999.6 1999.8 1999.8 1999.6 1999.6 1999.7 1999.5	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9	96-63-6 108-67-8 108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4	N/A N/A 100 ppm (435mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 50 ppm (255mg/m3/8H) N/A	orl-rat 5000mg/kg orl-rat 5g/kg NVA orl-rat 2240mg/kg orl-rat 2290mg/kg orl-rat 3900mg/kg orl-rat 2100mg/kg
53. 54. 55. 58. 57. 58. 59. 80. 61.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene seo-Butyl benzene Chlorobenzene 2-Chlorotoluene	35162 35162 35162 35162 35162 35163 35163 35163 35163 35163	050823 050823 050823 050823 050823 050823 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.06 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40005.8 40005.8 40001.2 40002.4 40003.8 40000.3 40003.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA	NA NA NA NA NA NA NA	1989.6 1989.8 1989.6 1989.6 1989.6 1989.7 1989.7 1989.7	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22	95-63-6 106-67-8 106-36-3 98-06-6 135-96-8 106-90-7 95-49-8 106-43-4 85-50-1	N/A N/A 100 ppm (435mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 50 ppm (255mg/m3/8H) N/A 60 ppm (300mg/m3/ (CL)	orl-rat 5000mg/kg orl-rat 59/kg NVA orl-rat 2240mg/kg orl-rat 2290mg/kg orl-rat 2190mg/kg orl-rat 2190mg/kg orl-rat 500mg/kg
53. 54. 55. 56. 57. 58. 59. 61. 62.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene sec-Butyl benzene Chlorobenzene 2-Chlorotoluene 4-Chlorotoluene	35162 35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 050823 050823 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.06 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.8 40003.8 40003.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	1999.6 1999.8 1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22	95-63-6 108-67-8 108-38-3 98-08-6 135-98-8 108-90-7 95-49-8 106-43-4 85-50-1 541-73-1	N/A N/A N/A 100 ppm (435mg/m3/8H) N/A N/A N/A 75 ppm (355mg/m3/8H) S0 ppm (255mg/m3/8H) N/A 50 ppm (350mg/m3/1H) N/A N/A N/A	orl-ret 5000mg/kg orl-ret 59/kg NYA orl-ret 2240mg/kg orl-ret 2290mg/kg orl-ret 2290mg/kg orl-ret 2100mg/kg orl-ret 2100mg/kg orl-ret 500mg/kg gr-mus 1062mg/kg
53. 54. 55. 56. 57. 68. 69. 61. 62. 63. 64. 65.	1,2,3-Trichlorobenzene 1,2,4-Trinklorobenzene 1,2,4-Trinklylorobenzene 1,3,5-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene sec-Butyl benzene Schlorobenzene 2-Chlorotokuene 4-Chlorotokuene 1,2-Dicklorobenzene 1,3-Dicklorobenzene 1,4-Dicklorobenzene	35162 35162 35162 35162 35162 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.06 0.06 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.8 40003.8 40001.7 40001.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA NA	NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA	1999.6 1999.8 1999.8 1999.6 1999.6 1999.7 1999.7 1999.7 1999.7 1999.6 1999.6	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22	95-63-6 108-67-8 108-38-3 98-08-6 135-98-8 108-90-7 95-49-8 106-43-4 85-50-1 541-73-1 108-48-7	N/A N/A 100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H) 50 ppm (300mg/m3/8H) 75 ppm (450mg/m3/8H)	orl-rat 5000mg/kg orl-rat 50/kg NVA orl-rat 2240mg/kg orl-rat 2300mg/kg orl-rat 2300mg/kg orl-rat 500mg/kg br-mus 15082mg/kg orl-rat 500mg/kg orl-rat 500mg/kg
53. 54. 55. 56. 57. 58. 69. 61. 62. 63. 64. 66.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene sec-Butyl benzene Shorobenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene luopropylbenzene	35162 35162 35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.06 0.06 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4 40000.3 40000.3 400003.8 40001.7 40001.8 40000.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA NA	NA N	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA NA NA	NA N	1999.6 1999.8 1999.8 1999.6 1999.6 1999.7 1999.7 1999.7 1999.6 1999.6 1999.6	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22	95-63-6 108-67-8 108-38-3 98-08-6 135-96-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1 108-48-7 98-82-8	N/A N/A N/A 100 ppm (435mg/m3/8H) N/A N/A N/A N/A 75 ppm (350mg/m3/8H) 60 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3/ CL) N/A N/A 50 ppm (450mg/m3/8H) 80 ppm (450mg/m3/8H) 80 ppm (450mg/m3/8H)	orl-rat 5000mg/kg orl-rat 50fkg NVA NVA orl-rat 2240mg/kg orl-rat 2290mg/kg orl-rat 2290mg/kg orl-rat 200mg/kg orl-rat 500mg/kg orl-rat 500mg/kg orl-rat 500mg/kg orl-rat 1400mg/kg orl-rat 1400mg/kg
53. 54. 55. 57. 58. 59. 80. 61. 62. 63. 64. 65.	1.2,3-Trichlorobenzene 1.2,4-Trichlorobenzene 1.2,4-Trimethylbenzene 1.3,5-Trimethylbenzene m-Xylene tert-Bulyl benzene soc-Bulyl benzene Chlorobenzene 2-Chlorobenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene	35162 35162 35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.8 400001.7 40001.8 40000.8 40000.8	2000 2000 2000 2000 2000 2000 2000 200	NA N	NA N	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA N	NA N	1999.6 1999.8 1999.8 1999.6 1999.6 1999.7 1999.7 1999.7 1999.6 1999.6 1999.5	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22	95-63-6 106-67-8 106-38-3 98-06-6 135-96-8 106-90-7 95-49-8 106-43-4 95-50-1 541-73-1 106-48-7 98-82-8 103-65-1	N/A N/A N/A 100 ppm (435mg/m3/8H) N/A N/A N/A N/A Spm (350mg/m3/8H) S0 ppm (350mg/m3/8H) N/A 50 ppm (350mg/m3/8H) N/A 75 ppm (450mg/m3/8H) S0 ppm (245mg/m3/8H) N/A N/A N/A N/A N/A N/A N/A	ori-ret 5000mg/kg ori-ret 5g/kg ori-ret 2290mg/kg ori-ret 2290mg/kg ori-ret 2390mg/kg ori-ret 3000mg/kg ori-ret 500mg/kg ori-ret 500mg/kg ori-ret 500mg/kg ori-ret 6000mg/kg ori-ret 6000mg/kg ori-ret 6000mg/kg
53. 54. 55. 56. 57. 58. 60. 61. 62. 63. 64. 65. 66.	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene sec-Butyl benzene Shorobenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene luopropylbenzene	35162 35162 35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.06 0.06 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.8 40006.7 40005.8 40001.2 40002.4 40000.3 40000.3 400003.8 40001.7 40001.8 40000.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA NA	NA N	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA NA NA	NA N	1999.6 1999.8 1999.8 1999.6 1999.6 1999.7 1999.7 1999.7 1999.6 1999.6 1999.6	23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22	95-63-6 108-67-8 108-38-3 98-08-6 135-96-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1 108-48-7 98-82-8	N/A N/A N/A 100 ppm (435mg/m3/8H) N/A N/A N/A N/A 75 ppm (350mg/m3/8H) 60 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3/ CL) N/A N/A 50 ppm (450mg/m3/8H) 80 ppm (450mg/m3/8H) 80 ppm (450mg/m3/8H)	orl-rat 5000mg/kg orl-rat 50fkg NVA NVA orl-rat 2240mg/kg orl-rat 2290mg/kg orl-rat 2290mg/kg orl-rat 200mg/kg orl-rat 500mg/kg orl-rat 500mg/kg orl-rat 500mg/kg orl-rat 1400mg/kg orl-rat 1400mg/kg

1 of 2

Printed: 2/19/2024, 2:35:59

Part # 95317

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

\*Standards are prepared gravimetrically using betaness that are calibrated with weights tractable to NiST (one above).

\*Standards are prepared gravimetrically using betaness that are calibrated with weights tractable to NiST (one above).

\*All Standards are cardined (\*\*). 28\*\* of the stated when, entires effective stated.

\*All Standards are prepared as a state of the state

800-368-1131 www.absolutestandards.com





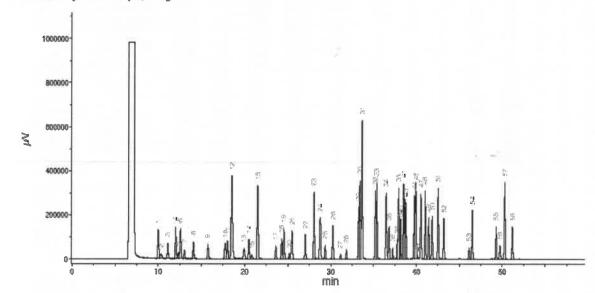
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

#### Run 17, "P95317 L021524 [2000µg/mL in MeOH]"

Run Length: 60.00 min, 35998 points at 10 points/second. Created: Sat, Feb 17, 2024 at 10:04:27 AM. Sampled: Sequence "021624-GC5M1", Method "GC5-M1". Analyzed using Method "GC5-M1".

#### Comments

GC5-M1 Analysis by Candice Warren
Column ID SP8-Vocol 105 meter X 0.53mm X 3.0µm film thickness
Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min., Air(make-up)=290mL/min., Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=290mL/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



Peak 2	Narre	
4 444 4		(min.)
3	Ether	9.97
32	1,1,2-Trichtoro-1,2,2-trilbuornethans	10.33
3	1,1-Dichloroethene	23.10
4	Acetonitrile	12.00
5	Iodomethane	12.31
6	Allyl shloride	12,56
7	Carbon disulfide/Mathylone chloride	13.04
.8.	frans-1,2-Dichloroethens	14.07
9	1,1-Dichloroethane	15.74
10	2,2-Dichlarograpane	17,74
11	cis-1,2-Dichloroethene	18.00
12	Methocrylonitrile/Methyl acrylate/Chloreform	18.49
13	IsobutanoV1.1.1-Trichloroethane	19.91
14	1,1-Dichibropropene	20.46
15	Carison tetrachloride	26.79
16	Benzene/1,2-Dichloroethane	21,48
17	Trichioroethene	23.58
18	1,2-Dichloropropaine	34.26
19	Mistryl methacrylate	24,52
20	Bromodichiorereathene	25.13
21	Dibromomethane/2-Nitropropage	25,46
22	cis-1.3-Dichipropropone	27.02
23	Totiene	28.05
24	Ethyl methecrylate/trans-1,3-Dichloropropage	28.73
23	1,1,2-Trichloroethane	29,34
25		30.24
- 27	Tetrachioraethene/1,3-Dichloropropene Dibromochioramethane	
28		31.16
	1,2-Dibromoethane	31,84
10	Chlorobenzene	33.26
30	Ethylbenzene/1,1.1.2-Ritrachloroethane	33.40
31	m-Hytene/p-Xylene	33.66
33	q-Xylene	33,22
33	Styrene	35.39
34	Isopropylbenesne/Bromeform	36.48
35	cis-1,4-Dichloro-2-butane	36.80
36	1,1,2,2-Tetrachioroethene	37.23
37	1,2,3-Trichloropropune	37,77
38	n-Propy/benzene	37.92
39	trans-1,4-Dichloro-2-butene	30.05
40	Bromobenzene	36.14
42	1,3,5-Trimethyitentene	39.50
42	2-Chlorotolyeng	30.62
43	4-Chlorotoluene	38.77
44	tert-Butylbenzene	39.76
45	1,2,4-Trimethylbenzene	39.91
46	Perstachioroethene	40,17
45	sec-Butylbenzens	40.52
48	p-faggropykoluene	41.02
49	1.3-Dichierobenzene	41.42
\$0	L.4-Dichiprobenzone	41.83
51	n-Butylbenzene	42.52
52	1,2-Dichlerobenzene	43,10
53	1,2-Sibramo+3-chloropropens	46.12
54	Nérobensuse	46.48
55	1,2.4-Trichtonsbenzeive	49.26
16/6	Hexactrorobutadiene	49.22
57	Naghthalene	50,26
58	1,2,3-Trichtoroberszene	51.16

### Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



### Certified Reference Material CRM Ree 03/17/24



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

CERTIFIED WEIGHT REPORT

Parl Number: 95317 Lot Number: 021624 Description: Universal VOA Megamix 69 components

Solvent(s): Lot# Methanol EG359-USQ12

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

021624 DATE 021624 DATE Reviewed By

		NIST Test	ID#: BUTB			5E-	05 Balance Una	centulory							Prince prepare		021624	
	1	Weight(s) shown below were combi-	ned and dilut	led to (mL)	: 10		21 Flask Uncer								Reviewed	By:	Pedro L. Rentas	DATE
						0.0	- FARM DICCI	(BEERLA										
			(RM#)	Lot	D	it. Init	al Initial	Nominal	Deutste	0					Expanded		SDS Information	
		Compound	Part Numb		_				Purity	Punity	Uncertainty	Target	Actual	Actual	Uncertainty	(Soli	ent Safety Info. On Atta	ched pa.)
		and the same	7 days Tyuntin	JOH HUTTHUS	PAR PAR	acar ver (	mL) Gond.(ug/m	st.) Conc (µg/ml	L) (%)	Uncertainty	Pipetra (mL)	Weight(g)	Weight(g)	Conc (ug/mL)	(+/-) (ug/mL)	CAS#	OSHA PEL (TWA)	LD50
	1. /	Acetonitrile	(0004)															ED30
		Allyl chloride (3-Chloropropene)	(0324)	02164				2000	99.99	0.2	NA	0.20007	0.20020	2001.3	8.1	75-05-8	40 man office a factorism	A CONTRACTOR OF THE PARTY OF TH
		Carbon disulphide	(0325)					2000	99	0.2	NA	0.20207	0.20221	2001.4	8.2	107-05-1	40 ppm (70mg/m3/8H)	ori-rat 2460mg/kg
			(0060)	MKCR8	561 N	A N/	NA NA	2000	99.99	0.2	NA	0.20007	0.20023	2001.6			1 ppm (3mg/m3/8H)	orl-ret 700mg/kg
		cis-1,4-Dichtoro-2-butene	(1196)	147188	EF N.	A N/	NA NA	2000	95	0.2	NA	0.21058	0.21069		8.1	75-15-0	4 ppm (12mg/m3) (skin)	ori-rat 1200mg/kg
		rans-1,4-Dichloro-2-butene	(0486)	MKBP60	41V N	A NA	NA NA	2000	96.5	0.2	NA NA	0.20731		2001.1	8.5	1478-11-5	N/A	N/A
		Diethyl einer	(0153)	IK18CAS	000C N.			2000	99.9	0.2	NA		0.20748	2001.7	8.4	110-57-6	N/A	N/A
	7. E	Elhyl methacrylate	(0381)	06128				2000	99	0.2		0.20025	0.20040	2001.5	8.1	60-29-7	WA	N/A
	B. 10	odomethane	(0489)	SHBF87				2000			NA	0.20207	0.20230	2002.3	8.2	97-63-2	N/A	orl-rat 14800mg/kg
	9. 2	2-Methyl-1-propanol	(0445)	15241E					99.5	0.2	NA.	0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mg/m3/6H)(skin)	orl-rat 76mg/kg
1		Methacrylonitrile	(0442)					2000	99.5	0.2	NA.	0.20106	0.20120	2001.4	8.1	78-83-1	50 ppm (150mg/m3/8H)	orl-rat 2460mg/kg
1		dethyl acrylate		004276				2000	99	0.2	NA	0.20207	0.20221	2001,4	8.2	128-98-7	1 ppm (3mg/m3/8H)(skin)	
		dethyl methacrylate	(1075)	SHEKOE				2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3		orl-rat 120mg/kg
			(0404)	MKBW51				5000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	10 ppm(35mg/m3/8H)(skin)	
	_	Atrobenzene	(0228)	012131		NA NA	NA	2000	99	0.2	NA	0.20207	0.20220	2001.3			100 ррт (410тр/т3/ан)	orl-ret 7872mg/kg
1	_	-Nilropropane	(0481)	14002J	X NA	NA NA	NA.	2000	97.3	0.2	NA	0.20560	0.20577		8.2	98-95-3	1 ppm (5rng/m3/8H)(skin)	orl-rat 780mg/kg
1		entachloroethane	(0450)	HGA0	1 N/	NA.	NA	2000	98	0.2	NA	0.20413		2001.6	8.3	79-46-9	10 ppm (35mg/m3/8H)	orl-ret 720mg/kg
11	8. 1	1.2-Trichlorotrifluoroethane	(0474)	18930	N/	NA.		2000	99	0.2	NA		0.20430	2001.6	8.3	78-01-7	N/A	N/A
- 17	7. <u>B</u>	romodichioromethane	35171	101623	0.0				NA			0.20207	0.20225	2001.8	8.2	76-13-1	1000 ppm (7600mg/m3/8H)	ori-rat 43g/kg
- 18	B. D	bromochloromethane	35171	101623						NA NA	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	ori-rat 916mg/kg
19	e. ci	s-1,2-Dichloroethene	35171	101823				2000	NA.	NA NA	0.017	NA	NA NA	1999.6	23.0	124-48-1	N/A	orl-rat 848mg/kg
20		ans-1,2-Dichloroethene	35171					2000	NA	NA	0.017	NA	NA.	1999.7	22.9	156-59-2	N/A	
21	_	lethylene chloride		101623				2000	NA	NA	0.017	NA	NA	1999.6	23.0	158-60-5	N/A	N/A
22		1-Dichloroethene	35171	101623				2000	NA	NA.	0.017	NA	NA	1999.6	22.9	75-09-2		orl-rat 1235mg/kg
23			32251	102023		10.0	20001.6	2000	NA	NA	0.042	NA	NA	1999.7	20.4		500 ppm	ori-rat 820mg/kg
		romotorm	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8		75-35-4	1 ppm (4mg/m3/BH)	orl-rat 200mg/kg
24	_	arbon tetrachioride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA		20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	orl-rat 933mg/kg
25		hioroform	95321	020724	0.10	10.00		2000	NA	NA	0.042	NA		1999.8	20.4	56-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350mg/kg
26	. DI	bromemthane	95321	020724				2000	NA	NA			NA NA	2001.9	20.5	67-68-3	60 ppm (240mg/m3) (CL)	ori-ret 908mg/kg
27	. 1.	1-Dichloroethane	95321	020724				2000			0.042	NA	NA NA	1999.8	20.5	74-95-3	N/A	orl-rat 108mg/kg
28	. 25	2-Dichloropropane	95321	020724					NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	ori-rat 725mg/kg
29		itrachloroethene	95321	020724				2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	NA	N/A
30	1.1	1,1-Trichleroethane			0.10			2000	NA	NA	0.042	NA	NA	2019.6	20.8	127-18-4	25 ppm (170mg/m3/6H)(final)	
31		2-Dibromo-3-chioropropane	95321	020724	0.10			2000	NA	NA	0.042	NA	NA	1999.8	20.5	71-55-6		
	_		35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA	2000.3	22.9		350 ppm (1900mg/m3/8H)	orl-rat 10300mg/kg
32		2-Dibromoethane	35161	112322	0.05	5.00	40024.6	2000	NA	NA	0.017	NA	NA			96-12-8	0.001 ppm	orl-ras 179mg/kg
33		2-Dichlorcethane	39161	112322	0.05	5.00	40018.0	2000	NA	NA	0.017	NA	NA NA	2000.7	22.9	108-93-4	20 ppm (8H)	orl-rat 108mg/kg
34		2-Dichloropropane	35161	112322	0.05	5.00	40051,0	2000	NA	NA	0.017			2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670mg/kg
35.	1,3	3-Dichloropropane	35161	112322	0.05		40005.9	2000	NA			NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8Fg)	orl-rat 1947mg/kg
36,	1.1	-Dichtaropropene	35161	112322	0.05		40012.1	2000		NA	0.017	NA	NA	1999.8	22.9	142-28-9	N/A	1107-mua 3800mg/kg
37.	cis-	-1,3-Dichloropropene	35181	112322	0.05	5.00			NA	NA	0.017	NA	NA	2000.1	29.7	563-58-6	N/A	N/A
		ns-1,3-Dichtoropropene	36161	112322			40010.0	2000	NA	NA	0.017	NA	NA	2000.0		0081-01-5	N/A	N/A
		xachloro-1,3-butadiene			0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4		0061-02-6	NA	
		1,2-Tetrachicroethane	35161	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7	87-68-3	0.02 ppm (0.24mg/m3/BH)	N/A
		2,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1		830-20-6		orl-rat 82mg/kg
			35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9		N/A	orl-rat 670mg/kg
96.	1,3	2-Trichloroethane	35181	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-34-5	5 ppm (35mg/m3/9H)(eldn)	ori-rat 800mg/kg
		chloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA			79-00-5	10 ppm (45mg/m3/8H)(skin)	orl-rat 836mg/kg
		,3-Trichioropropane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA		2000.9	22,9	79-01-6	50 ppm (270mg/m3/8i-t)	orl-mus 2402mg/kg
45.	Bar	nzene	35162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017		NA	1999.9	22.9	96-18-4	10 ppm (60mg/m3/8H)	orl-ret 149,8mg/kg
46.	Bro	mobenzene	35162	050823	0.05	5.00	40006.9	2000	NA	NA NA		NA	NA .	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894mg/kg
		lutyl benzene	35162	060823	0.05	5.00	40003.8	2000			0.017	NA	NA	1999.8	22.9	108-86-1	N/A	Orl-rat 2009mg/kg
48.	Eth	lyl benzene	35162	050823	0.05	5.00	40004.8		NA	NA	0.017	NA	NA	1999.7	22.9	104-51-8	N/A	N/A
		sopropyl toluene	35162	050823				2000	NA	NA	0.017	NA	NA.	1999.7		100-41-4	100 ppm (435mg/m3/8H)	ori-rat >2000mg/kg
		phthalene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.8		99-87-8	N/A	orl-rat 4750mg/kg
	Styr				0.05	5.00	40008.2	2000	NA	NA	0.017	NA	NA	1999.8		91-20-3	10 ppm (50mg/m3/8H)	
	Total		35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		00-42-5	10 ppm (sumg/ms/sH)	orl-rat 490mg/kg
			35162	050823	0.05	5.00	40008.2	2000	NA	NA	0.017	NA	NA.	1999.8				ori-rat 5000mg/kg
		3-Trichlorobenzene	35162	050823	0.05	5.00	40003.1	2000	NA	NA	0.017	NA	NA	1999.7		08-88-3	200 ppm	orl-rat 5000mg/kg
		4-Trichlorobenzene	35162	050823	0.05	5.00	40006.8	2000	NA	NA	0.017	NA	NA NA			87-61-6	N/A	pr-mus 1390mg/kg
		A-Trimetis/benzene	35162	050823	0.05	5.00	40001.8	2000	NA	NA	0.017			1999.8		20-82-1	8 ppm (CL) (40mg/m3)	ori-rat 756mg/kg
56.	1,3,	5-Trimethylbenzene	35162	050923	0.05	5.00	40006.7	2000	NA	NA		NA	NA	1999.6		95-63-6	N/A	ori-rat 5g/kg
57.	m-)(	(ylene	35162	050823	0.05	5.00	40005.8	2000			0.017	NA	NA	1999.8		08-87-8	N/A	orl-rat 5000mg/kg
58.	tert-	Butyl benzene	35163	101923	0.05	5.00			NA	NA	0.017	NA	NA	1999.8	22.9 1	08-38-3	100 ppm (435mg/m3/8H)	orl-rat 5g/kg
		Butyl benzene	35163				40001.2	2000	NA	NA	0.017	NA	NA	1999.8		8-80-86	N/A	N/A
		probanzene		101923	0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA	1999.6		35-96-8	N/A	
		hlorotoluene	36163	101923	0.05	5.00	40003.B	2000	NA.	NA	0.017	NA	NA	1999.7		08-90-7		orl-rat 2240mg/kg
			35163	101923	0.05	5.00	40000.3	2000	NA	NA	0.017	NA	NA	1999.5		95-49-8	75 ppm (350mg/m3/8H)	orl-rat 2290mg/kg
		hiorotoluena	35163	101923	0.05	5.00	40003.3	2000	NA	NA	0.017	NA	NA				60 ppm (250mg/m3/8H)	orl-ret 3900mg/kg
		Dichlorobenzene	35163	101923	0.05	5.00	40003.8	2000	NA	NA	0.017	NA.		1000.7		06-43-4	N/A	orl-rat 2100mg/kg
		Dichlorobenzene	35163	101923	0.05	5.00	40001.7	2000	NA	NA	0.017		NA	1999.7		5-50-1	50 ppm (300mg/m3) (CL)	orl-rat 500mg/kg
		Dichlorobenzene	35163	101923	0.06	5.00	40001.8	2000	NA	NA NA		NA NA		1999.6		41-73-1	N/A	ipr-mus 1062mg/kg
		ropylbenzene		101923	0.05	5.00	40000.8				0.017	NA		1999.6	22.9 10	06-46-7	75 ppm (450mg/m3/8H)	ori-rat 500mg/kg
		opylbenzene		101923	0.05			2000	NA	NA	0.017	NA		1999.5	22.9 9	8-82-8		orl-rat 1400mg/kg
68.						5.00	40003,4	2000	NA	NA	0.017	NA	NA	1999.7		03-65-1		orl-rat 6040mg/kg
69.				101923	0.05	5.00	40040.8		NA	NA	0.017	NA		2001.5		5-47-6		
	-11		35183	101923	0.05	5.00	40000.6	2000	NA	NA	0.017	NA				08-42-3	100 ppm (435mg/m3/8H)	pr-mus 1364mg/kg
					Tine countd										IN		(VV NEXT) (430m(S/m3/8H))	orl-rat 5g/kg

<sup>\*</sup> The certified value is the constantation calculated from gravinetate and volumetric advantages at the constant side of the constant s

#### Absolute Standards, Inc. 00-368-1131

vww.absolutestandards.com





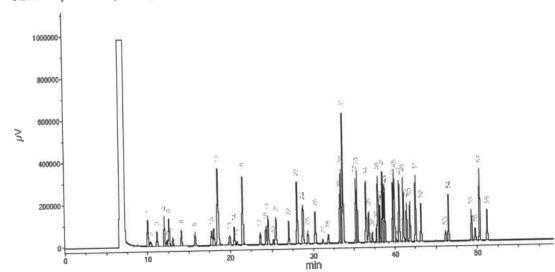
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

### 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., Air(make-up)=230mL/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



Pagelt III	M person	FID RT (unin.)
1	Fener	9,97
2	1,1,2-THickstorp 1, Z, 3-thiff/concests-ette	20.33
3	: LD chloroethere	11.10
a.	Acesportnia	17.00
9	Lodomethana	12,34
6	Altyl chloride	12.56
7	Carbon disuttida/Hethylene-chloride	13,04
	trans-1,2-Dichlordeshane	14.07
9	1.1-Dichterostnene	15.74
LD	2,2-Dichloropropede	12.74
12	cig-1,3-Gignlorostherid	18.00
12	Hetnacrylonistic/Hethyl acrylate/Chloroform	10.49
13	Imputancy 1.1, 1-Trichiprocharie	19,91
14	3.1-Dichiometropisto	25.16
15	Carbon tetrachieride	30.79
16	Benzene/1,2-Diemorgetnene	21.49
19	Trichigepastiere	23,68
18	1,2-Dighter-opropers	24.24
19	Mathyi meshacrylate	24.52
20	Bromomergorametrane	29.13
21	Dipromometherso/2-francouse	25.46
33	cse-1, X-Oscislosphoropina	27.02
23	Solutions	36,03
24	Etroy mathacrysus/trans-3,2-Dicreerparapana	29,73
98	1,1,2-Trichlorgethene	29.34
26	Tetrachiprostana/1,3-Dichloroprophine	30.24
27	Dependention	35.16
28	1.2 Discompetitions	35,384
20	Chlerobenginsk	33,25
30	Ethylbengeners, 3, 2, 2. Tetraesterbethane	31.40
81	m-Sylene/p-Kylene	33,85
32	e-Kylana	35,22
33	Styrene	35,39
34	Inoprogylpenzene/Bréchefouri	35,48
35	cis-1,4-Djeniora-2-butene	345,460
36	1, 1,2,2-Terremieroethene	37.23
27	\$ .2.2.Yrankovopropene	37.77
20	n-Propylpanierie	37,92
39	transation-Dichlera-2-buterie	30.05
40	Branchantens	38.14
41	1,3,5-Transthybensens	10.50
42	2-Chieroteiuenk	36,62
43	4:-Chiprotolognik	38.27
44	cart Bucylonicone	29.76
49	1,2,4-Trimeskylbensens	30,91
46	Persachiconet hans	40,17
47	sec-Buty/bensene	40.52
40	p Inopropylsoludite	41.62
49	1,3-Drightgrabenanne	41.42
50	1,4-thicklorobenzene	45,63
51	re-Bucymenteria	42,62
52	1,2-13-chtorobenzene	43.18
53		46,12
54		46,58
55		49.25
56		49.72
8.2		50.74
511	1,2,3-Trichsonobensen4	61.16

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

Address

44 Rossotto Dr.

Emergency Telephone USA & CANADA Emergency Telephone International

1-800-535-5053

Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

Section II - Hazards Identification

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

H225 H370 **Highly Flammable Liquid and Vapor** Cause damage to organs

H351

H301, 311, 331 Toxic if swallowed, skin contact, inhaled Suspected of causing cancer

P271 Use in ventilated area

P280

Use gloves, eye protection/face shelld

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

If inhaled

In case of skin contact

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. 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

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 Clean up

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).

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

Storage Conditions

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

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: 9/16/24

#### Absolute Standards Inc.

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

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

		Specific Gravity (H2O = 1)	0.70
Boiling Point	65°C		0.79
Vapor Pressure (mm Hg)	96	Melting Point	-98°C
Vapor Density (AIR = 1)	1.11	Evaporation rate (Butyl Acetate = 1)	4.6

Solubility in Water

COMPLETE

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions. Vapours may form explosive mixture with air.

Possibility of hazardous reactions 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

DOT (US)

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 supervised by a person trained in chemical nandling. The user is responsible for determining the precautions and dangers of this chemical for his or ner particular application. Depending one tisage, 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 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 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 usage as of varied, ABSOLUTE STANDARDS INC. Cannot warn of all the potential use are so varied, ABSOLUTE STANDARDS INC bis 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 Ree 03/17/24



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

CERTIFIED WEIGHT REPORT

Parl Number: 95317 Lot Number: 021624 Description: Universal VOA Megamix 69 components

Solvent(s): Lot# Methanol EG359-USQ12

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

021624 DATE 021624 DATE Reviewed By

		NIST Test	ID#: BUTB			5E-	05 Balance Una	centulory							Prince prepare		021624	
	1	Weight(s) shown below were combi-	ned and dilut	led to (mL)	: 10		21 Flask Uncer								Reviewed	By:	Pedro L. Rentas	DATE
						0.0	- FARM DICCI	(BEERLA										
			(RM#)	Lot	D	it. Init	al Initial	Nominal	Deutste	0					Expanded		SDS Information	
		Compound	Part Numb		_				Purity	Punity	Uncertainty	Target	Actual	Actual	Uncertainty	(Soli	ent Safety Info. On Atta	ched pa.)
		and the same	7 days Tyuntin	JOH HUTTHUS	PAR PAR	acar ver (	mL) Gond.(ug/m	st.) Conc (µg/ml	L) (%)	Uncertainty	Pipetra (mL)	Weight(g)	Weight(g)	Conc (ug/mL)	(+/-) (ug/mL)	CAS#	OSHA PEL (TWA)	LD50
	1. /	Acetonitrile	(0004)															ED30
		Allyl chloride (3-Chloropropene)	(0324)	02164				2000	99.99	0.2	NA	0.20007	0.20020	2001.3	8.1	75-05-8	40 man office a factorism	A CONTRACTOR OF THE PARTY OF TH
		Carbon disulphide	(0325)					2000	99	0.2	NA	0.20207	0.20221	2001.4	8.2	107-05-1	40 ppm (70mg/m3/8H)	ori-rat 2460mg/kg
			(0060)	MKCR8	561 N	A N/	NA NA	2000	99.99	0.2	NA	0.20007	0.20023	2001.6			1 ppm (3mg/m3/8H)	orl-ret 700mg/kg
		cis-1,4-Dichtoro-2-butene	(1196)	147188	EF N.	A N/	NA NA	2000	95	0.2	NA	0.21058	0.21069		8.1	75-15-0	4 ppm (12mg/m3) (skin)	ori-rat 1200mg/kg
		rans-1,4-Dichloro-2-butene	(0486)	MKBP60	41V N	A NA	NA NA	2000	96.5	0.2	NA NA	0.20731		2001.1	8.5	1478-11-5	N/A	N/A
		Diethyl einer	(0153)	IK18CAS	000C N.			2000	99.9	0.2	NA		0.20748	2001.7	8.4	110-57-6	N/A	N/A
	7. E	Elhyl methacrylate	(0381)	06128				2000	99	0.2		0.20025	0.20040	2001.5	8.1	60-29-7	WA	N/A
	B. 10	odomethane	(0489)	SHBF87				2000			NA	0.20207	0.20230	2002.3	8.2	97-63-2	N/A	orl-rat 14800mg/kg
	9. 2	2-Methyl-1-propanol	(0445)	15241E					99.5	0.2	NA.	0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mg/m3/6H)(skin)	orl-rat 76mg/kg
1		Methacrylonitrile	(0442)					2000	99.5	0.2	NA.	0.20106	0.20120	2001.4	8.1	78-83-1	50 ppm (150mg/m3/8H)	orl-rat 2460mg/kg
1		dethyl acrylate		00427E				2000	99	0.2	NA	0.20207	0.20221	2001,4	8.2	128-98-7	1 ppm (3mg/m3/8H)(skin)	
		dethyl methacrylate	(1075)	SHEKOE				2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3		orl-rat 120mg/kg
			(0404)	MKBW51				5000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	10 ppm(35mg/m3/8H)(skin)	
	_	Atrobenzene	(0228)	012131		NA NA	NA	2000	99	0.2	NA	0.20207	0.20220	2001.3			100 ррт (410тр/т3/ан)	orl-ret 7872mg/kg
1	_	-Nilropropane	(0481)	14002J	X NA	NA NA	NA.	2000	97.3	0.2	NA	0.20560	0.20577		8.2	98-95-3	1 ppm (5rng/m3/8H)(skin)	orl-rat 780mg/kg
1		entachloroethane	(0450)	HGA0	1 N/	NA.	NA	2000	98	0.2	NA	0.20413		2001.6	8.3	79-46-9	10 ppm (35mg/m3/8H)	orl-ret 720mg/kg
11	8. 1	1.2-Trichlorotrifluoroethane	(0474)	18930	N/	NA.		2000	99	0.2	NA		0.20430	2001.6	8.3	78-01-7	N/A	N/A
- 17	7. <u>B</u>	romodichioromethane	35171	101623	0.0				NA			0.20207	0.20225	2001.8	8.2	76-13-1	1000 ppm (7600mg/m3/8H)	ori-rat 43g/kg
- 18	B. D	bromochloromethane	35171	101623						NA .	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	ori-rat 916mg/kg
19	e. ci	s-1,2-Dichloroethene	35171	101823				2000	NA.	NA NA	0.017	NA	NA NA	1999.6	23.0	124-48-1	N/A	orl-rat 848mg/kg
20		ans-1,2-Dichloroethene	35171					2000	NA	NA	0.017	NA	NA.	1999.7	22.9	156-59-2	N/A	
21	_	lethylene chloride		101623				2000	NA	NA	0.017	NA	NA	1999.6	23.0	158-60-5	N/A	N/A
22		1-Dichloroethene	35171	101623				2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-09-2		orl-rat 1235mg/kg
23			32251	102023		10.0	20001.6	2000	NA	NA	0.042	NA	NA	1999.7	20.4		500 ppm	ori-rat 820mg/kg
		romotorm	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8		75-35-4	1 ppm (4mg/m3/BH)	orl-rat 200mg/kg
24	_	arbon tetrachioride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA		20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	orl-rat 933mg/kg
25		hioroform	95321	020724	0.10	10.00		2000	NA	NA	0.042	NA		1999.8	20.4	56-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350mg/kg
26	. DI	bromemthane	95321	020724				2000	NA	NA			NA NA	2001.9	20.5	67-68-3	60 ppm (240mg/m3) (CL)	ori-ret 908mg/kg
27	. 1.	1-Dichloroethane	95321	020724				2000			0.042	NA	NA NA	1999.8	20.5	74-95-3	N/A	orl-rat 108mg/kg
28	. 25	2-Dichloropropane	95321	020724					NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	ori-rat 725mg/kg
29		itrachloroethene	95321	020724				2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	NA	N/A
30	1.1	1,1-Trichleroethane			0.10			2000	NA	NA	0.042	NA	NA	2019.6	20.8	127-18-4	25 ppm (170mg/m3/6H)(final)	
31		2-Dibromo-3-chioropropane	95321	020724	0.10			2000	NA	NA	0.042	NA	NA	1999.8	20.5	71-55-6		
	_		35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA	2000.3	22.9		350 ppm (1900mg/m3/8H)	orl-rat 10300mg/kg
32		2-Dibromoethane	35161	112322	0.05	5.00	40024.6	2000	NA	NA	0.017	NA	NA			96-12-8	0.001 ppm	orl-ras 179mg/kg
33		2-Dichlorcethane	39161	112322	0.05	5.00	40018.0	2000	NA	NA	0.017	NA	NA NA	2000.7	22.9	108-93-4	20 ppm (8H)	orl-rat 108mg/kg
34		2-Dichloropropane	35161	112322	0.05	5.00	40051,0	2000	NA	NA	0.017			2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670mg/kg
35.	1,3	3-Dichloropropane	35161	112322	0.05		40005.9	2000	NA			NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8Fg)	orl-rat 1947mg/kg
36,	1.1	-Dichtaropropene	35161	112322	0.05		40012.1	2000		NA	0.017	NA	NA	1999.8	22.9	142-28-9	N/A	1107-mua 3800mg/kg
37.	cis-	-1,3-Dichloropropene	35181	112322	0.05	5.00			NA	NA	0.017	NA	NA	2000.1	29.7	563-58-6	N/A	N/A
		ns-1,3-Dichtoropropene	36161	112322			40010.0	2000	NA	NA	0.017	NA	NA	2000.0		0081-01-5	N/A	N/A
		xachloro-1,3-butadiene			0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4		0061-02-6	NA	
		1,2-Tetrachicroethane	35161	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7	87-68-3	0.02 ppm (0.24mg/m3/BH)	N/A
		2,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1		830-20-6		orl-rat 82mg/kg
			35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9		N/A	orl-rat 670mg/kg
96.	1,3	2-Trichloroethane	35181	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-34-5	5 ppm (35mg/m3/9H)(eldn)	ori-rat 800mg/kg
		chloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA			79-00-5	10 ppm (45mg/m3/8H)(skin)	orl-rat 836mg/kg
		,3-Trichioropropane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA		2000.9	22,9	79-01-6	50 ppm (270mg/m3/8i-t)	orl-mus 2402mg/kg
45.	Ber	nzene	35162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017		NA	1999.9	22.9	96-18-4	10 ppm (60mg/m3/8H)	orl-ret 149,8mg/kg
46.	Bro	mobenzene	35162	050823	0.05	5.00	40006.9	2000	NA	NA NA		NA	NA .	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894mg/kg
		lutyl benzene	35162	060823	0.05	5.00	40003.8	2000			0.017	NA	NA	1999.8	22.9	108-86-1	N/A	Orl-rat 2009mg/kg
48.	Eth	lyl benzene	35162	050823	0.05	5.00	40004.8		NA	NA	0.017	NA	NA	1999.7	22.9	104-51-8	N/A	N/A
		sopropyl toluene	35162	050823				2000	NA	NA	0.017	NA	NA.	1999.7		100-41-4	100 ppm (435mg/m3/8H)	ori-rat >2000mg/kg
		phthalene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.8		99-87-8	N/A	orl-rat 4750mg/kg
	Styr				0.05	5.00	40008.2	2000	NA	NA	0.017	NA	NA	1999.8		91-20-3	10 ppm (50mg/m3/8H)	
	Total		35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		00-42-5	10 ppm (sumg/ms/sH)	orl-rat 490mg/kg
			35162	050823	0.05	5.00	40008.2	2000	NA	NA	0.017	NA	NA.	1999.8				ori-rat 5000mg/kg
		3-Trichlorobenzene	35162	050823	0.05	5.00	40003.1	2000	NA	NA	0.017	NA	NA	1999.7		08-88-3	200 ppm	orl-rat 5000mg/kg
		4-Trichlorobenzene	35162	050823	0.05	5.00	40006.8	2000	NA	NA	0.017	NA	NA NA			87-61-6	N/A	pr-mus 1390mg/kg
		A-Trimetis/benzene	35162	050823	0.05	5.00	40001.8	2000	NA	NA	0.017			1999.8		20-82-1	8 ppm (CL) (40mg/m3)	ori-rat 756mg/kg
56.	1,3,	5-Trimethylbenzene	35162	050923	0.05	5.00	40006.7	2000	NA	NA		NA	NA	1999.6		95-63-6	N/A	ori-rat 5g/kg
57.	m-)(	(ylene	35162	050823	0.05	5.00	40005.8	2000			0.017	NA	NA	1999.8		08-87-8	N/A	orl-rat 5000mg/kg
58.	tert-	Butyl benzene	35163	101923	0.05	5.00			NA	NA	0.017	NA	NA	1999.8	22.9 1	08-38-3	100 ppm (435mg/m3/8H)	orl-rat 5g/kg
		Butyl benzene	35163				40001.2	2000	NA	NA	0.017	NA	NA	1999.8		98-06-6	N/A	N/A
		probenzene		101923	0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA	1999.6		35-96-8	N/A	
		hlorotoluene	36163	101923	0.05	5.00	40003.B	2000	NA.	NA	0.017	NA	NA	1999.7		08-90-7		orl-rat 2240mg/kg
			35163	101923	0.05	5.00	40000.3	2000	NA	NA	0.017	NA	NA	1999.5		95-49-8	75 ppm (350mg/m3/8H)	orl-rat 2290mg/kg
		hiorotoluena	35163	101923	0.05	5.00	40003.3	2000	NA	NA	0.017	NA	NA				60 ppm (250mg/m3/8H)	orl-ret 3900mg/kg
		Dichlorobenzene	35163	101923	0.05	5.00	40003.8	2000	NA	NA	0.017	NA.		1000.7		06-43-4	N/A	orl-rat 2100mg/kg
		Dichlorobenzene	35163	101923	0.05	5.00	40001.7	2000	NA	NA	0.017		NA	1999.7		5-50-1	50 ppm (300mg/m3) (CL)	orl-rat 500mg/kg
		Dichlorobenzene	35163	101923	0.06	5.00	40001.8	2000	NA	NA NA		NA NA		1999.6		41-73-1	N/A	ipr-mus 1062mg/kg
		ropylbenzene		101923	0.05	5.00	40000.8				0.017	NA		1999.6	22.9 10	06-46-7	75 ppm (450mg/m3/8H)	ori-rat 500mg/kg
		opylbenzene		101923	0.05			2000	NA	NA	0.017	NA		1999.5	22.9 9	8-82-8		orl-rat 1400mg/kg
68.						5.00	40003,4	2000	NA	NA	0.017	NA	NA	1999.7		03-65-1		orl-rat 6040mg/kg
69.				101923	0.05	5.00	40040.8		NA	NA	0.017	NA		2001.5		5-47-6		
	-11		35183	101923	0.05	5.00	40000.6	2000	NA	NA	0.017	NA				08-42-3	100 ppm (435mg/m3/8H)	pr-mus 1364mg/kg
					Tine countd										IN		(VV NEXT) (430m(S/m3/8H))	orl-rat 5g/kg

<sup>\*</sup> The certified value is the constantation calculated from gravinetate and volumetric advantages at the constant side of the constant s

#### Absolute Standards, Inc. 00-368-1131

vww.absolutestandards.com





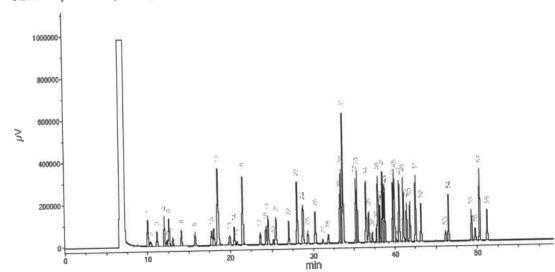
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

### 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., Air(make-up)=230mL/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



Pagelt III	M person	FID RT (unin.)
1	Espar	9,97
2	1,1,2-THickstorp 1, Z, 3-thiff/concests-are	20.33
3	: LD chloroethere	11.10
a.	Acesportnia	17.00
9	Lodomethana	12,34
6	Altyl chloride	12.56
7	Carbon disuttida/Hethylene-chloride	13,04
	trans-1,2-Dichlordeshane	14.07
9	1.1-Dichterostnene	15.74
LD	2,2-Dichloropropede	12.74
12	cig-1,3-Gignlorostherid	18.00
12	Hetnacrylonistic/Hethyl acrylate/Chloroform	10.49
13	Imputancy 1.1, 1-Trichiprocharie	19,91
14	3.1-Dichiometropisto	25.16
15	Carbon tetrachieride	30.79
16	Benzene/1,2-Diemorgetnene	21.49
19	Trichigepastiere	23,68
18	1,2-Dighter-opropers	24.24
19	Mathyi meshacrylate	24.52
20	Bromomergorametrane	29.13
21	Dipromometherso/2-francouse	25.46
33	cse-1, X-Oscislosphoropina	27.02
23	Solutions	36,03
24	Etroy mathacrysus/trans-3,2-Dicreerparapana	29,73
98	1,1,2-Trichlorgethene	29.34
26	Tetrachiprostana/1,3-Dichloroprophine	30.24
27	Dependention	35.16
28	1.2 Discompetitions	35,384
20	Chlerobenginsk	33,25
30	Ethylbengeners, 3, 2, 2. Tetraesterbethane	31.40
81	m-Sylene/p-Kylene	33,85
32	e-Kylana	35,22
33	Styrene	35,39
34	Inoprogylpenzene/Bréchefouri	35,48
35	cis-1,4-Djeniora-2-butene	345,460
36	1, 1,2,2-Terremieroethene	37.23
27	\$ .2.2.Yrankneograpene	37.77
20	n-Propylpanierie	37,92
39	transation-Dichlera-2-buterie	30.05
40	Branchantens	38.14
41	1,3,5-Transthybensens	10.50
42	2-Chieroteiuenk	36,62
43	4:-Chiprotolognik	38.27
44	cart Bucylonicone	29.76
49	1,2,4-Trimeskylbensens	30,91
46	Persachiconet hans	40,17
47	sec-Buty/bensene	40.52
40	p Inopropylsoludite	41.62
49	1,3-Drightgrabenanne	41.42
50	1,4-thicklorobenzene	45,63
51	re-Bucymenteria	42,62
52	1,2-13-chtorobenzene	43.18
53		46,12
54		46,58
55		49.25
56		49.72
8.2		50.74
511	1,2,3-Trichsprobensen4	61.16

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

Address

44 Rossotto Dr.

Emergency Telephone USA & CANADA Emergency Telephone International

1-800-535-5053

Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

Section II - Hazards Identification

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

H225 H370 **Highly Flammable Liquid and Vapor** Cause damage to organs

H351

H301, 311, 331 Toxic if swallowed, skin contact, inhaled Suspected of causing cancer

P271 Use in ventilated area

P280

Use gloves, eye protection/face shelld

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

If inhaled

In case of skin contact

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. 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

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 цр 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.

Storage Conditions

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

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. 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: 9/16/24

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

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

		Specific Gravity (H2O = 1)	0.70
Boiling Point	65°C		0.79
Vapor Pressure (mm Hg)	96	Melting Point	-98°C
Vapor Density (AIR = 1)	1.11	Evaporation rate (Butyl Acetate = 1)	4.6

Solubility in Water

COMPLETE

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions. Vapours may form explosive mixture with air.

Possibility of hazardous reactions 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

DOT (US)

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 supervised by a person trained in chemical nandling. The user is responsible for determining the precautions and dangers of this chemical for his or ner particular application. Depending one tisage, 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 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 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 usage as of varied, ABSOLUTE STANDARDS INC. Cannot warn of all the potential use are so varied, ABSOLUTE STANDARDS INC bis 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.

www.absolutestandards.com



## Certified Reference Material CRM

0

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

## CERTIFIED WEIGHT REPORT

Acrolein 091424 91980 Part Number: Lot Number: Description:

Refrigerate (4 °C) 101424 Recommended Storage: **Expiration Date:** 

**6UTB** 5000 Nominal Concentration (µg/mL): NIST Test ID#;

5E-05 Balance Uncertainty 0.001 Flask Uncertainty 10.0 Weight(s) shown below were combined and diluted to (mL):

072324Q

Lot

Solvent(s): Water

DATE DATE 091424 091424 Pedro L. Rentas Justin Dippold of the Formulated By: Reviewed By

orl-rat 46mg/kg **D**50 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) 0.1 ppm 107-02-8 CAS# Uncertainty Conc (ug/mL) (+/-) (ug/mL) Expanded 52.5 5008.9 Actual Weight (g) 0.05175 Actual Weight(g) 0.05166 Target Uncertainty Purity 0.5 Purity 8 97 Conc (ug/mL) Nominal 5000 103755V10F Number þ EM# ഗ Compound

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5mm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C, Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005,D

Abundance

1. Acrolein

8.93

250000

200002

150000

100000

50000

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

27

00009

50000

28

40000

30000

20002

10000

37

Time-->0

65 75 85

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Shandards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Shandards 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.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Printed: 9/16/2024, 5:10:49 PM

www.absolutestandards.com



## Certified Reference Material CRM

0

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

## CERTIFIED WEIGHT REPORT

Acrolein 091424 91980 Part Number: Lot Number: Description:

Refrigerate (4 °C) 101424 Recommended Storage: **Expiration Date:** 

**6UTB** 5000 Nominal Concentration (µg/mL): NIST Test ID#;

5E-05 Balance Uncertainty 0.001 Flask Uncertainty 10.0 Weight(s) shown below were combined and diluted to (mL):

072324Q

Lot

Solvent(s): Water

DATE DATE 091424 091424 Pedro L. Rentas Justin Dippold of the Formulated By: Reviewed By

orl-rat 46mg/kg **D**50 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) 0.1 ppm 107-02-8 CAS# Uncertainty Conc (ug/mL) (+/-) (ug/mL) Expanded 52.5 5008.9 Actual Weight (g) 0.05175 Actual Weight(g) 0.05166 Target Uncertainty Purity 0.5 Purity 8 97 Conc (ug/mL) Nominal 5000 103755V10F Number þ EM# ഗ Compound

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5mm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C, Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005,D

Abundance

1. Acrolein

8.93

250000

200002

150000

100000

50000

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

27

00009

50000

28

40000

30000

20002

10000

37

Time-->0

65 75 85

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Shandards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Shandards 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.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Printed: 9/16/2024, 5:10:49 PM

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

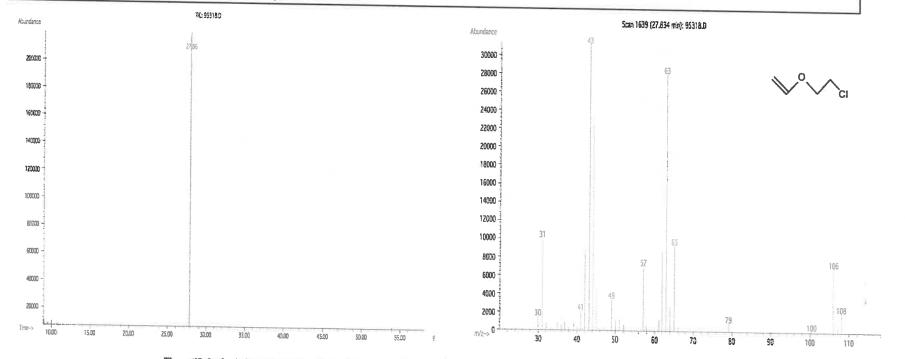
**SDS Information** Expanded Uncertainty

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 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

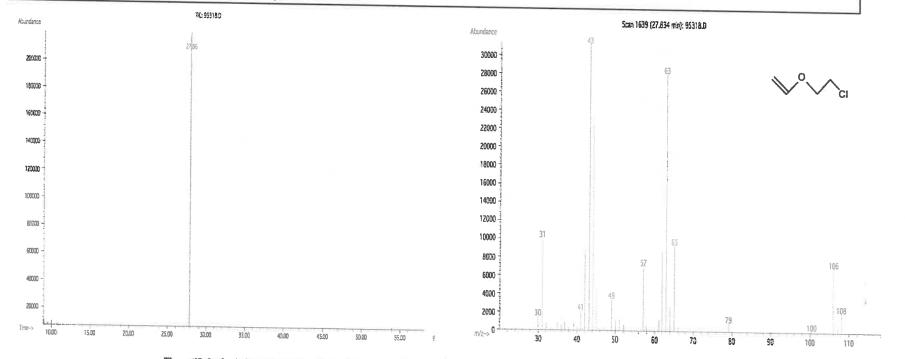
**SDS Information** Expanded Uncertainty

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).

https://Absolutestandards.com

# www.absolutestandards.com

## Certified Reference Material CRM Dee



0

Lots Solvent(s):

95318

Part Number:

CERTIFIED WEIGHT REPORT

Methanol EJ143-US	7	Show Cheuler	120524
りゃ のいりオーフ	Formulated By:	Prashant Chauhan	DATE
014943	The	to Horto	120524
lance Uncertainty	Reviewed By:	Pedro L. Rentas	DATE
sk Uncertainty			

orl-rat 250mg/kg

M

110-75-8

40.5

10002.9

0.50550

0.50536

0.2

66

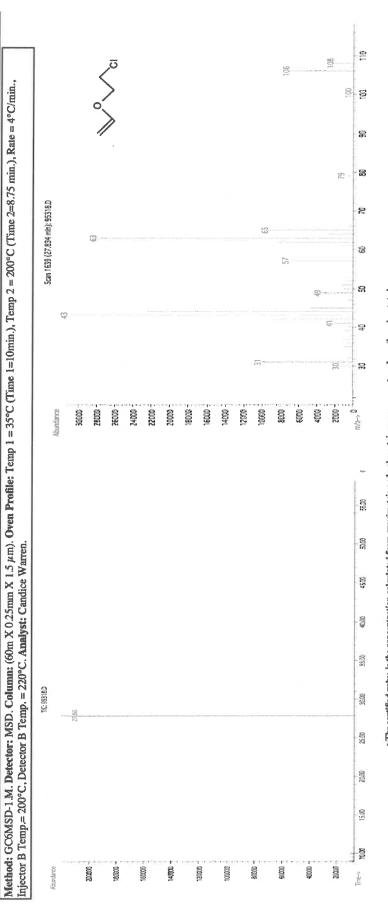
10000

**MKCD0033** 

74

1. 2-Chloroethyl vinyl ether

낆	120524				Methanol EJ143-US		1	1	
Chlor	oethy	2-Chloroethyl vinyl ether			(			from Cheuler	120524
				7	りゃ のぶりオーフ	٥	Formulated	By: Prashant Chauhan	DATE
120527								1	
Refrigerate (4 °C)	ite (4	()		)	できの ナコ		*	A	
10000							\	ledo plento	120524
6UTB			5E-05	Balance Uncertainty			Reviewed By	: Pedro L. Rentas	DATE
Weight(s) shown below were combined and diluted to (mL):		20.0	0.001	0.001 Flask Uncertainty					
							Expanded	SDS Information	
		Nominal	Purity	Purity Uncertainty	Target Actual	Actual	Uncertainty	Uncertainty (Solvent Safety Info. On Attached pg.)	i pg.)
Lot Number	- 1	RM# Lot Number Conc (ug/mil.)	(%)	Purity	Weight (g) Weight (g)	Conc(ug/mL) (++-) (ug/mL)	(+/-) (ng/mL)	CAS# OSHA PEL (TWA)	LDSO



- 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 (+/-1) 0.5% of the stated value, unless otherwise stated.
   All Standards, after opening ampule, should be stored with caps light 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).

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.

**Emergency Telephone International** Date Prepared/Revised

1-352-323-3500 January 1, 2024

Hamden CT, 06514 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

Cause damage to organs

H351 P280 Suspected of causing cancer

P271 P302.332

Use in ventilated area 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



Methanol





Signal Word: DANGER

### Section III - Composition

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

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.

### Section V. FIREFIGHTING MEASURES

Flammability

If swallowed

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. 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

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.

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

### Section IX - Physical/Chemical Characteristics

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

Boiling Point		Specific Gravity (H2O = 1)	
	65°C		0.79
Vapor Pressure (mm Hg)		Melting Point	
-	96		-98°C
Vapor Density (AIR = 1)		Evaporation rate	7
	1.11	(Butyl Acetate = 1)	4.6
Solubility in Water COMPLETE			^

COMPLETE

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

Stable under recommended storage conditions. 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.

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

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

### Section XV. REGULATORY INFORMATION

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

### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/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.

https://Absolutestandards.com

# www.absolutestandards.com

## Certified Reference Material CRM Dee



0

Lots Solvent(s):

95318

Part Number:

CERTIFIED WEIGHT REPORT

Methanol EJ143-US	7	Show Cheuler	120524
りゃ のいりオーフ	Formulated By:	Prashant Chauhan	DATE
014943	The	to Horto	120524
lance Uncertainty	Reviewed By:	Pedro L. Rentas	DATE
sk Uncertainty			

orl-rat 250mg/kg

M

110-75-8

40.5

10002.9

0.50550

0.50536

0.2

66

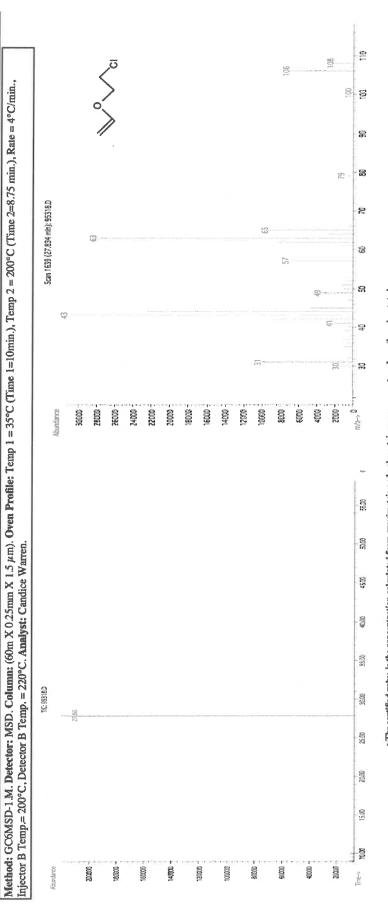
10000

**MKCD0033** 

74

1. 2-Chloroethyl vinyl ether

낆	120524				Methanol EJ143-US		1	1	
Chlor	oethy	2-Chloroethyl vinyl ether			(			from Cheuler	120524
				7	りゃ のぶりオーフ	٥	Formulated	By: Prashant Chauhan	DATE
120527								1	
Refrigerate (4 °C)	ite (4	()		)	できの ナコ		*	A	
10000							\	ledo plento	120524
6UTB			5E-05	Balance Uncertainty			Reviewed By	: Pedro L. Rentas	DATE
Weight(s) shown below were combined and diluted to (mL):		20.0	0.001	0.001 Flask Uncertainty					
							Expanded	SDS Information	
		Nominal	Purity	Purity Uncertainty	Target Actual	Actual	Uncertainty	Uncertainty (Solvent Safety Info. On Attached pg.)	i pg.)
Lot Number	- 1	RM# Lot Number Conc (ug/mil.)	(%)	Purity	Weight (g) Weight (g)	Conc(ug/mL) (++-) (ug/mL)	(+/-) (ng/mL)	CAS# OSHA PEL (TWA)	LDSO



- 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 (+/-1) 0.5% of the stated value, unless otherwise stated.
   All Standards, after opening ampule, should be stored with caps light 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).

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 **Emergency Telephone International** 

1-800-535-5053

Address 44 Rossotto Dr. Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

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 Suspected of causing cancer

H370 P271

Cause damage to organs

H351 P280

Use gloves, eye protection/face shelld

P302.332

Use in ventilated area 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.

If swallowed

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.

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

Section IX - Physical/Chemical Characteristics

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

Boiling Point		Specific Gravity (H2O = 1)	
	65°C		0.79
Vapor Pressure (mm Hg)		Melting Point	
-	96		-98°C
Vapor Density (AIR = 1)		Evaporation rate	7
	1.11	(Butyl Acetate = 1)	4.6
Solubility in Water COMPLETE			^

COMPLETE

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

Stable under recommended storage conditions. 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.

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

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

### Section XV. REGULATORY INFORMATION

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

### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/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 Dec

0

2-Chloroethyl vinyl ether

Description:

Lot Number:

Part Number:

CERTIFIED WEIGHT REPORT

20524

Refrigerate (4 °C)

Recommended Storage:

Nominal Concentration (µg/mL):

Expiration Date:

10000 **6UTB** 

120527

nttps://Absolutestandards.com Lots Solvent(s):

SDS Information

Uncertainty Expanded

Actual

Actual

Uncertainty

Purity

Nominal

5E-05 0.001

50.0

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

NIST Test ID#:

Methanol EJ143-US	( ) 3.	Short Cheuler	120524
けるかはファ	Formulated By:	Prashant Chauhan	DATE
014940	1/2	In Herris	120524
Balance Uncertainty	Reviewed By:	Pedro L. Rentas	DATE
Flask Uncertainty			

orl-rat 250mg/kg (Solvent Safety Info. On Attached pg.) Method: GC6MSD-1.M. Detector: MSD. Column: (60m X 0.25mm X 1.5 μm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., OSHA PEL (TWA) M 110-75-8 CAS# (+/-) (ng/mL) 40.5 Conc(µg/mL) 10002.9 Weight (g) 0.50550 Weight (g) 0.50536 Target Purity 0.2 8 66 Injector B Temp = 200°C, Detector B Temp, = 220°C. Analyst: Candice Warren. Conc (vg/ml.) 10000 **MKCD0033** Lot Number 74 **8**\* 2-Chloroethyl vinyl ether Compound

14000

2002

0000

18000

20000

Abradance

160000

9000

9000

40000

9000

- 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 light 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).

Printed: 12/5/2024, 4:07:29 PM

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 **Emergency Telephone International** 

1-800-535-5053

Address 44 Rossotto Dr. Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

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 Suspected of causing cancer

H370 P271

Cause damage to organs

H351 P280

Use gloves, eye protection/face shelld

P302.332

Use in ventilated area If on skin, wash with soap and water

P305,351,338

If in eyes, remove contacts, rinse with water



Methanol





Signal Word: DANGER

Section III - Composition

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

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.

If swallowed

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.

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

Section IX - Physical/Chemical Characteristics

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

Boiling Point		Specific Gravity (H2O = 1)	
	65°C		0.79
Vapor Pressure (mm Hg)		Melting Point	
-	96		-98°C
Vapor Density (AIR = 1)		Evaporation rate	7
	1.11	(Butyl Acetate = 1)	4.6
Solubility in Water COMPLETE			^

COMPLETE

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

Stable under recommended storage conditions. 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.

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

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

### Section XV. REGULATORY INFORMATION

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

### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/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 Dec

0

2-Chloroethyl vinyl ether

Description:

Lot Number:

Part Number:

CERTIFIED WEIGHT REPORT

20524

Refrigerate (4 °C)

Recommended Storage:

Nominal Concentration (µg/mL):

Expiration Date:

10000 **6UTB** 

120527

nttps://Absolutestandards.com Lots Solvent(s):

SDS Information

Uncertainty Expanded

Actual

Actual

Uncertainty

Purity

Nominal

5E-05 0.001

50.0

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

NIST Test ID#:

Methanol EJ143-US	( ) 3.	Short Cheuler	120524
けるかはファ	Formulated By:	Prashant Chauhan	DATE
014940	1/2	In Herris	120524
Balance Uncertainty	Reviewed By:	Pedro L. Rentas	DATE
Flask Uncertainty			

orl-rat 250mg/kg (Solvent Safety Info. On Attached pg.) Method: GC6MSD-1.M. Detector: MSD. Column: (60m X 0.25mm X 1.5 μm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., OSHA PEL (TWA) M 110-75-8 CAS# (+/-) (ng/mL) 40.5 Conc(µg/mL) 10002.9 Weight (g) 0.50550 Weight (g) 0.50536 Target Purity 0.2 8 66 Injector B Temp = 200°C, Detector B Temp, = 220°C. Analyst: Candice Warren. Conc (vg/ml.) 10000 **MKCD0033** Lot Number 74 **8**\* 2-Chloroethyl vinyl ether Compound

14000

2002

0000

18000

20000

Abradance

160000

9000

9000

40000

9000

- 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 light 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).

Printed: 12/5/2024, 4:07:29 PM

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 **Emergency Telephone International** 

1-800-535-5053

Address 44 Rossotto Dr. Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

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 Suspected of causing cancer

H370 P271

Cause damage to organs

H351 P280

Use gloves, eye protection/face shelld

P302.332

Use in ventilated area If on skin, wash with soap and water

P305,351,338

If in eyes, remove contacts, rinse with water



Methanol





Signal Word: DANGER

Section III - Composition

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

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.

If swallowed

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.

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

Section IX - Physical/Chemical Characteristics

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

Boiling Point		Specific Gravity (H2O = 1)	
	65°C		0.79
Vapor Pressure (mm Hg)		Melting Point	
	96		-98°C
Vapor Density (AIR = 1)		Evaporation rate	7
	1.11	(Butyl Acetate = 1)	4.6
Solubility in Water COMPLETE			^

COMPLETE

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

### Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

Stable under recommended storage conditions. 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.

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

### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

### Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

### Section XV. REGULATORY INFORMATION

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

### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/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**

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/ampul					
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	te: 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:

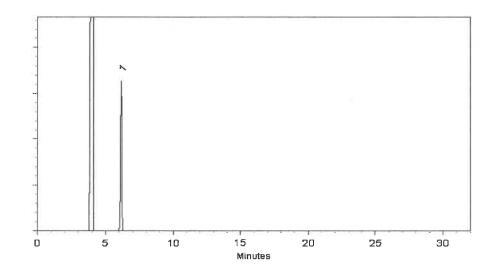
200°C

### 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**









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.: 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:

250°C

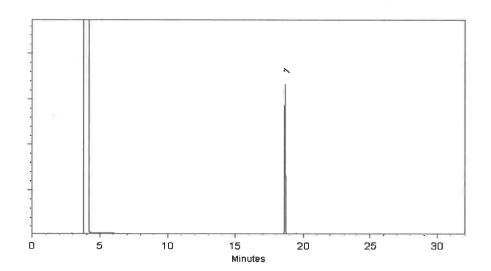
Det. Type:

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.

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.





### **CERTIFIED REFERENCE MATERIAL**

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:

> 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%

### **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:

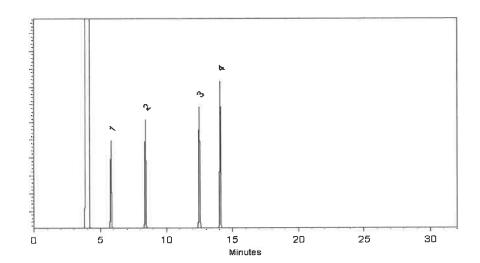
250°C

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.

Josh McCloskey - O

Date Mixed:

24-Jan-2023

Balance Serial #

B707717271

Got All Christie Mills - Operations Tech II - ARM QC

Date Passed:

27-Jan-2023

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.





### **CERTIFIED REFERENCE MATERIAL**









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

### 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.:

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:

2 mL

Pkg Amt:

> 1 mL

Expiration Date :

April 30, 2026

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%

Russ Bookhamer - Operations Technician I

Date Mixed:

11-Apr-2023

Balance: 1127510105

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.



### **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 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°

ge: 0°C or colder

Ship: A

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

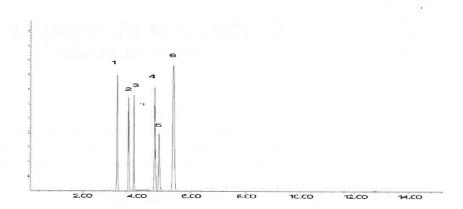
Det. Type: MSD

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:**

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

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

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

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

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

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

### Manufacturing Notes:

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

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





**CERTIFIED REFERENCE MATERIAL** 







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.:

30489

Lot No.: A0205013

**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:** 

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	Methyl acetate		79-20-9	SHBP3100	99%	2,012.7 μg/mL	+/- 69.5670
2	Vinyl acetate		108-05-4	RP231030CTH	98%	2,017.5 μg/mL	+/- 69.7338
3	Ethyl acetate		141-78-6	SHBQ9682	99%	2,020.0 μg/mL	+/- 69.8205
4	Isopropyl acetate		108-21-4	BCCG7069	99%	2,018.7 μg/mL	+/- 69.7744
5	Propyl acetate		109-60-4	KLOBM	99%	2,012.0 μg/mL	+/- 69.5439
6	Butyl acetate		123-86-4	SHBP6314		2,020.0 μg/mL	+/- 69.8205
7	Amyl acetate		628-63-7	41325/1		2,019.5 μg/mL	+/- 69.8046

\* 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.)

we cymin, (noid 5 min.

Inj. Temp: 200°C

Det. Temp:

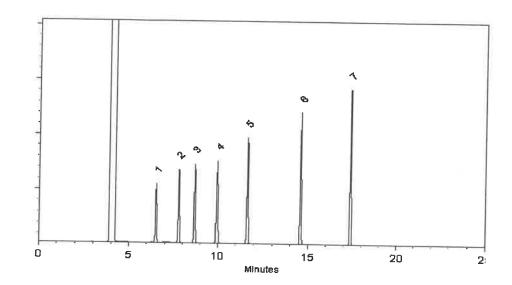
250°C

Det. Type:

Split Vent:

40 ml/min

inj. Voi



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:

04-Dec-2023

Balance Serial #

\_\_\_\_\_

1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

06-Dec-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.



**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 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.:

30489

Lot No.: A0209618

**Description:** 

8260B Acetates Mix

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

**Container Size:** 

Pkg Amt:

> 1 mL

**Expiration Date:** 

September 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	Methyl acetate	79-20 <b>-</b> 9	SHBP3100	99%	2,019.3 μg/mL	+/- 69.7974
2	Vinyl acetate	108-05-4	RP231030CTH	98%	2,016.8 μg/mL	+/- 69.7112
3	Ethyl acetate	141-78-6	SHBQ9682	99%	2,010.7 μg/mL	+/- 69.4979
4	Isopropyl acetate	108-21-4	BCCG7069	99%	2,016.0 μg/mL	+/- 69.6822
5	Propyl acetate	109-60-4	P8XLN	99%	2,008.0 μg/mL	+/- 69.4057
6	Butyl acetate	123-86-4	SHBP6314	99%	2,007.3 μg/mL	+/- 69.3826
7	Amyl acetate	628-63-7	41325/1	97%	2,004.7 μg/mL	+/- 69.2905

<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.)

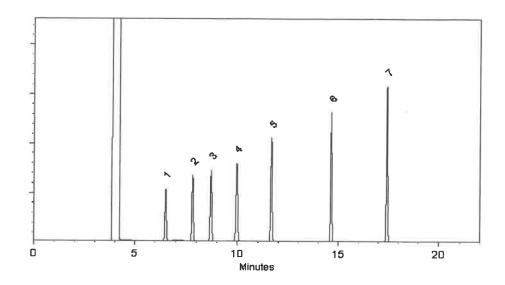
Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:

Split Vent: 40 ml/min

Inj. Vol



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.

Sam Moodler - Operations Tech I

Date Mixed:

28-Mar-2024

Balance Serial #

\_\_\_\_\_

B707717271

Dillan Murphy - Operations Technician I

Date Passed:

01-Apr-2024

### **Expiration Notes:**

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

### **Purity Notes:**

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

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

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

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

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

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

### **Manufacturing Notes:**

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

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





**CERTIFIED REFERENCE MATERIAL** 







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.:

30489

Lot No.: A0209618

**Description:** 

8260B Acetates Mix

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

**Container Size:** 

Pkg Amt:

> 1 mL

**Expiration Date:** 

September 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	Methyl acetate	79-20 <b>-</b> 9	SHBP3100	99%	2,019.3 μg/mL	+/- 69.7974
2	Vinyl acetate	108-05-4	RP231030CTH	98%	2,016.8 μg/mL	+/- 69.7112
3	Ethyl acetate	141-78-6	SHBQ9682	99%	2,010.7 μg/mL	+/- 69.4979
4	Isopropyl acetate	108-21-4	BCCG7069	99%	2,016.0 μg/mL	+/- 69.6822
5	Propyl acetate	109-60-4	P8XLN	99%	2,008.0 μg/mL	+/- 69.4057
6	Butyl acetate	123-86-4	SHBP6314	99%	2,007.3 μg/mL	+/- 69.3826
7	Amyl acetate	628-63-7	41325/1	97%	2,004.7 μg/mL	+/- 69.2905

<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.)

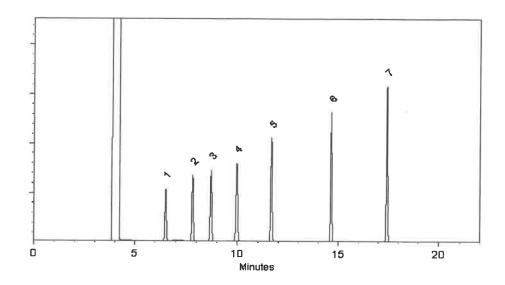
Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:

Split Vent: 40 ml/min

Inj. Vol



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.

Sam Moodler - Operations Tech I

Date Mixed:

28-Mar-2024

Balance Serial #

\_\_\_\_\_

B707717271

Dillan Murphy - Operations Technician I

Date Passed:

01-Apr-2024

### **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.





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

www.restek.com

# Certificate of Analysis

gravimetric

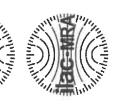


**CERTIFIED REFERENCE MATERIAL** 



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.
- 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.
- Þ Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers
  - Purity values are rounded to the nearest whole number.

# Certified Uncertainty Value Notes:

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

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

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

The 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



Dec 12/17/24 **CERTIFIED REFERENCE MATERIAL** 

30019





**Certificate of Analysis** chromatographic plus

ISO/IEC 17025 Appredit

Fax: 1-814-353-1309 www.restek.com

V14697-to-147

### 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.: A0210618

**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:

> 1 mL

**Expiration Date:** 

July 31, 2027

Storage:

0°C or colder

Ship:

**Ambient** 

### CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

**Purity** 99%

### 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:

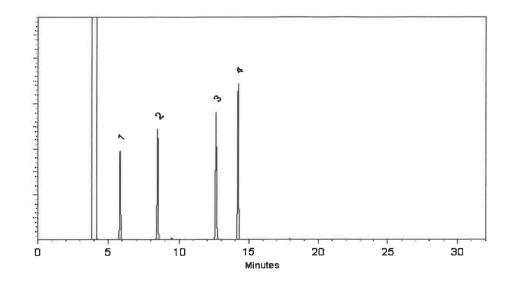
FID

### 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.

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

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





Dec 12/17/24 **CERTIFIED REFERENCE MATERIAL** 

30019





**Certificate of Analysis** chromatographic plus

ISO/IEC 17025 Appredit

Fax: 1-814-353-1309 www.restek.com

V14697-to-147

### 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.: A0210618

**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:

> 1 mL

**Expiration Date:** 

July 31, 2027

Storage:

0°C or colder

Ship:

**Ambient** 

### CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

**Purity** 99%

### 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:

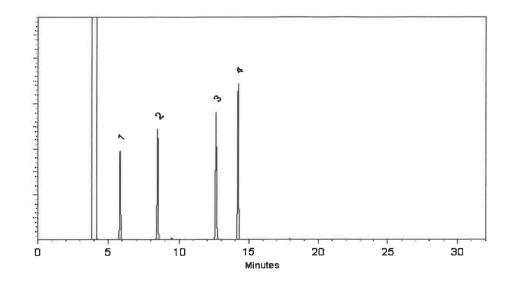
FID

### 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.

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

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





Dec 12/17/24 **CERTIFIED REFERENCE MATERIAL** 

30019





**Certificate of Analysis** chromatographic plus

ISO/IEC 17025 Appredit

Fax: 1-814-353-1309 www.restek.com

V14697-to-147

### 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.: A0210618

**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:

> 1 mL

**Expiration Date:** 

July 31, 2027

Storage:

0°C or colder

Ship:

**Ambient** 

### CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

**Purity** 99%

### 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:

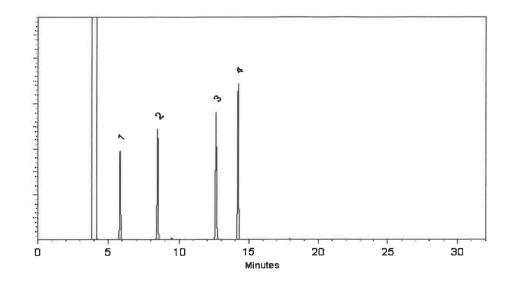
FID

### 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.

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

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





Dec 12/17/24 **CERTIFIED REFERENCE MATERIAL** 

30019





**Certificate of Analysis** chromatographic plus

ISO/IEC 17025 Appredit

Fax: 1-814-353-1309 www.restek.com

V14697-to-147

### 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.: A0210618

**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:

> 1 mL

**Expiration Date:** 

July 31, 2027

Storage:

0°C or colder

Ship:

**Ambient** 

### CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

**Purity** 99%

### 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:

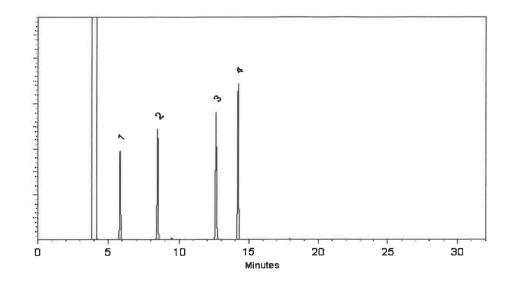
FID

### 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.

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

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



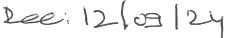


110 Benner Circle Bellefonte, PA 16823-8812 Tel: 1-814-353-1300

Fax: 1-814-353-1309

www.restek.com

### 10 vial. **CERTIFIED REFERENCE MATERIAL**



### **Certificate of Analysis**

chromatographic plus









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

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

Catalog No.:

30225

Lot No.: A0214960

**Description:** 

**Bromochloromethane Standard** 

Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul

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

August 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	Bromochloromethane	74-97-5	SYN240416CTH	99%	2,012.0 μg/mL	+/- 113.0519

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

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

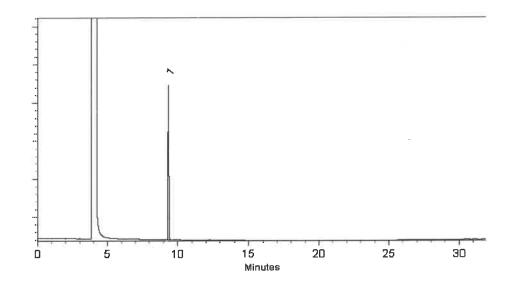
### Det. Type:

### **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.

Stacy & Clam

Date Mixed:

08-Aug-2024

Balance Serial #

1127510105

\_\_\_\_\_\_

Jennifer Pollino - Operations Tech III - ARM QC

Stacey Wanner - Operations Technician I

Date Passed:

14-Aug-2024

### **Expiration Notes:**

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

### **Purity Notes:**

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

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

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

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

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

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

### Manufacturing Notes:

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

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

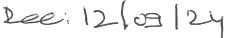


110 Benner Circle Bellefonte, PA 16823-8812 Tel: 1-814-353-1300

Fax: 1-814-353-1309

www.restek.com

### 10 vial. **CERTIFIED REFERENCE MATERIAL**



### **Certificate of Analysis**

chromatographic plus









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

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

Catalog No.:

30225

Lot No.: A0214960

**Description:** 

**Bromochloromethane Standard** 

Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul

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

August 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	Bromochloromethane	74-97-5	SYN240416CTH	99%	2,012.0 μg/mL	+/- 113.0519

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

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

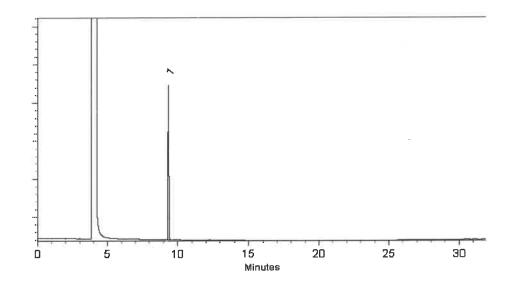
### Det. Type:

### **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.

Stacy & Clam

Date Mixed:

08-Aug-2024

Balance Serial #

1127510105

\_\_\_\_\_\_

Jennifer Pollino - Operations Tech III - ARM QC

Stacey Wanner - Operations Technician I

Date Passed:

14-Aug-2024

### **Expiration Notes:**

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

### **Purity Notes:**

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

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

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

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

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

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

### Manufacturing Notes:

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

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

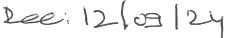


110 Benner Circle Bellefonte, PA 16823-8812 Tel: 1-814-353-1300

Fax: 1-814-353-1309

www.restek.com

### 10 vial. **CERTIFIED REFERENCE MATERIAL**



### **Certificate of Analysis**

chromatographic plus









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

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

Catalog No.:

30225

Lot No.: A0214960

**Description:** 

**Bromochloromethane Standard** 

Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul

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

August 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	Bromochloromethane	74-97-5	SYN240416CTH	99%	2,012.0 μg/mL	+/- 113.0519

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

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

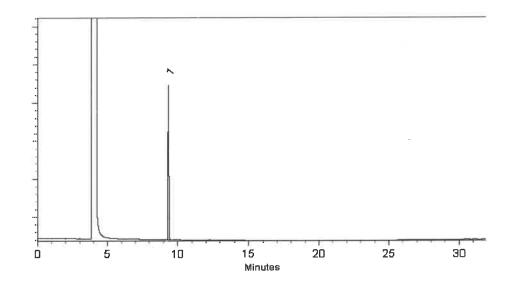
### Det. Type:

### **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.

Stacy & Clam

Date Mixed:

08-Aug-2024

Balance Serial #

1127510105

\_\_\_\_\_\_

Jennifer Pollino - Operations Tech III - ARM QC

Stacey Wanner - Operations Technician I

Date Passed:

14-Aug-2024

### **Expiration Notes:**

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

### **Purity Notes:**

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

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

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

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

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

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

### Manufacturing Notes:

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

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

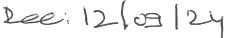


110 Benner Circle Bellefonte, PA 16823-8812 Tel: 1-814-353-1300

Fax: 1-814-353-1309

www.restek.com

# 10 vial. **CERTIFIED REFERENCE MATERIAL**



# **Certificate of Analysis**

chromatographic plus









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

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

Catalog No.:

30225

Lot No.: A0214960

**Description:** 

**Bromochloromethane Standard** 

Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul

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

August 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	Bromochloromethane	74-97-5	SYN240416CTH	99%	2,012.0 μg/mL	+/- 113.0519

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

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

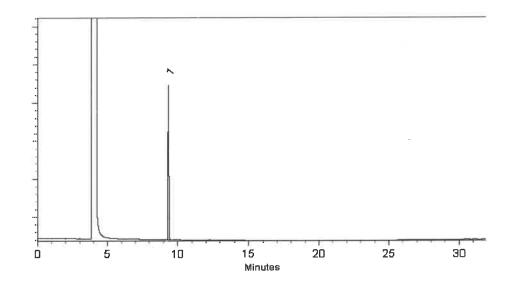
#### Det. Type:

#### **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.

Stacy & Clam

Date Mixed:

08-Aug-2024

Balance Serial #

1127510105

\_\_\_\_\_\_

Jennifer Pollino - Operations Tech III - ARM QC

Stacey Wanner - Operations Technician I

Date Passed:

14-Aug-2024

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

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



CERTIFIED REFERENCE MATERIAL 30 mid











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

V14727 to

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

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

Catalog No.:

30042

Lot No.: A0216826

**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:** 

May 31, 2031

Storage:

0°C or colder

Ship: **Ambient** 

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# **Purity** 

67-56-1 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

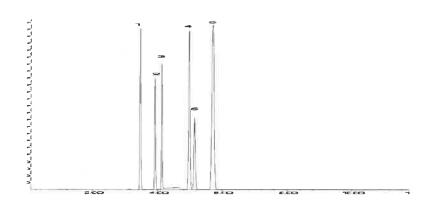
Det. Type:

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:

23-Sep-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

04-Oct-2024

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

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



CERTIFIED REFERENCE MATERIAL 30 mid











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

V14727 to

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

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

Catalog No.:

30042

Lot No.: A0216826

**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:** 

May 31, 2031

Storage:

0°C or colder

Ship: **Ambient** 

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# **Purity** 

67-56-1 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

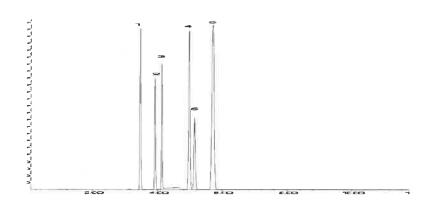
Det. Type:

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:

23-Sep-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

04-Oct-2024

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

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



# **CERTIFIED REFERENCE MATERIAL**









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

V14842 to 14846

#### 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.: A0217535

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

Container Size: 2 mL Pkg Amt: > 1 mL

October 31, 2027

Storage: 0°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	tert-Butanol (TBA)	75-65-0	SHBQ8002-1	99%	50,007.5 μg/mL	+/- 717.6137

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

Solvent: P&T Methanol

**Expiration Date:** 

**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

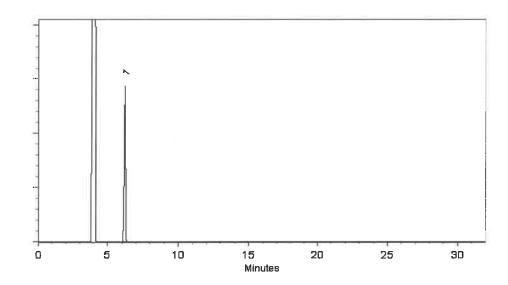
Det. Type:

FID

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.

Aaron Enyart - Operations Tech I

Date Mixed:

07-Oct-2024

Balance Serial #

B251644995

\_\_\_\_\_\_

Brittany Federinko - Operations Tech I

Date Passed:

09-Oct-2024

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

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



www.restek.com

### **CERTIFIED REFERENCE MATERIAL**

110 Benner Circle Bellefonte, PA 16823-8812 **Certificate of Analysis** Tel: 1-814-353-1300 gravimetric Fax: 1-814-353-1309









#### 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.:

555584

Lot No.: A0219012

Description:

Custom CLP VOA Surrogate Standard Mix

Custom CLP VOA Surrogate Standard Mix 25,000µg/mL, P&T Methanol,

1mL/ampul

**Container Size:** 

2 mL

Pkg Amt:

> 1 mL

**Expiration Date:** 

November 30, 2027

Storage:

0°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-33313	99%	25,228.0 μg/mL	+/- 1,428.7919
2	1-Bromo-4-fluorobenzene (BFB)	460-00-4	0000268853	99% 2	25,196.0 μg/mL	+/- 1,426.9795
3	Toluene-d8	2037-26-5	PR-34141	99%	25,228.0 μg/mL	+/- 1,428.7919

Solvent:

P&T Methanol

CAS#

67-56-1

Purity

99%

Jess Hoy - Operations Tech I

Date Mixed:

12-Nov-2024

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:**

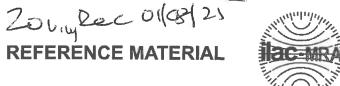
Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily
using NIST traceable weights, and/or dilutions with Class A glassware.

- 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

V14803-V14822

### 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.: A0220471

Description:

**Custom Vinyl Acetate Standard** 

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

Container Size:

Pkg Amt:

> 1 mL

**Expiration Date:** 

June 30, 2026

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	RD240423RSR	99%	8,066.0 μg/mL	+/- 278.7979

\* 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.

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:

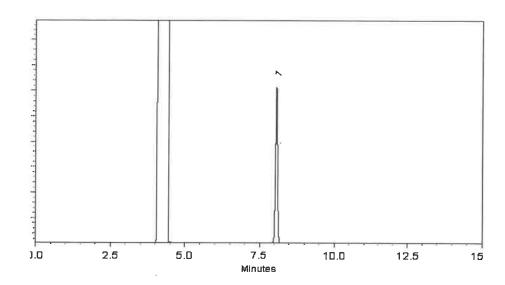
250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol **1**µľ



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.

Stead Ethan Winiarski - Operations Tech I

Date Mixed:

24-Dec-2024

Balance Serial #

1127510105

Dillan Murphy - Operations Technician I

Date Passed:

02-Jan-2025

REVIEWED By Janviller Politics at 7:12 um, Jan 63, 2025

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

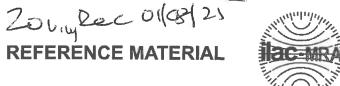
#### Manufacturing Notes:

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

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



# CERTIFIED REFERENCE MATERIAL











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

www.restek.com

# **Certificate of Analysis**

chromatographic

V14803-V14822

### 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.: A0220471

Description:

**Custom Vinyl Acetate Standard** 

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

Container Size:

Pkg Amt:

> 1 mL

**Expiration Date:** 

June 30, 2026

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	RD240423RSR	99%	8,066.0 μg/mL	+/- 278.7979

\* 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.

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:

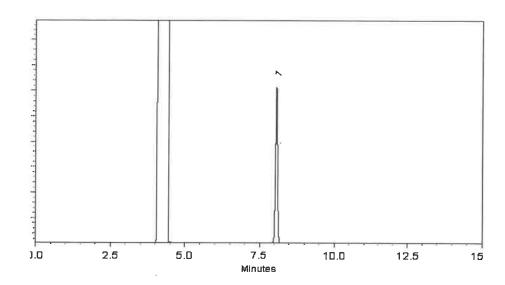
250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol **1**µľ



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.

Stead Ethan Winiarski - Operations Tech I

Date Mixed:

24-Dec-2024

Balance Serial #

1127510105

Dillan Murphy - Operations Technician I

Date Passed:

02-Jan-2025

REVIEWED By Janviller Politics at 7:12 um, Jan 63, 2025

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

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



**CERTIFIED REFERENCE MATERIAL** 

10 val Dec 01/08/25











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.: A0220563

**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, 2026

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	RD240423RSR	99%	8,060.0 μg/mL	+/- 278.5905

<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.

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:

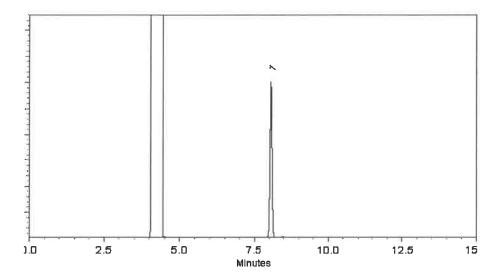
40 ml/min

**1**μ

Det. Type:

**Split Vent:** 

Inj. Vol



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:

30-Dec-2024

Balance Serial #

B345965662

willow shortly Dillan Murphy - Operations Technician I

Date Passed:

02-Jan-2025

REVIEWED By Jernifler Politics at 7:11 are, Jan 60, 2005

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

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



110 Benner Circle

Bellefonte, PA 16823-8812 Tel: 1-814-353-1300

Fax: 1-814-353-1309

www.restek.com

Dec 03/12/25 **CERTIFIED REFERENCE MATERIAL** 

10 vials



gravimetric

V14885-to-V14894









### 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.:

555583

Lot No.: A0223136

**Description:** 

Custom CLP VOA Internal Standard Mix

Custom CLP VOA Internal Standard Mix 25,000µg/mL, P&T Methanol,

1mL/ampul

**Container Size:** 

2 mL

Pkg Amt:

> 1 mL

**Expiration Date:** 

March 31, 2028

0°C or colder Storage:

> Ship: Ambient

> > CERTIFIED VALUES

Componen t#	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	1,4-Difluorobenzene	540-36-3	MKCS8657	99%	25,024.0 μg/mL	+/- 1,417.2383
2	Bromochloromethane	74-97-5	S241017RSR	99%	25,060.0 μg/mL	+/- 1,419.2772
3	Chlorobenzene-d5	3114-55-4	PR-31132	99%	25,048.4 μg/mL	+/- 1,418.6202

Solvent:

P&T Methanol

CAS#

67-56-1 99%

**Purity** 

Penelope Riglin - Operations Tech I

Date Mixed:

10-Mar-2025

Balance: 1128342314

\_\_\_\_\_\_

#### **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.





V14921 to V14938

Material No.: 9077-02
Batch No.: 24G0262002
Manufactured Date: 2024-05-14
Expiration Date: 2027-05-14

Revision No.: 0

Certificate of Analysis

Test	Specification	Docul*
	pecification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	™ 1.0 ppm	0 3 ppm
Titrable Acid (μeq/g)	≤ 0.3	0,3
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	-

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

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

Jamie Croak

Director Quality Operations, Bioscience Production





V14921 to V14938

Material No.: 9077-02
Batch No.: 24G0262002
Manufactured Date: 2024-05-14
Expiration Date: 2027-05-14

Revision No.: 0

Certificate of Analysis

Test	Specification	Docul*
	pecification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	™ 1.0 ppm	0 3 ppm
Titrable Acid (μeq/g)	≤ 0.3	0,3
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	-

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

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

Jamie Croak

Director Quality Operations, Bioscience Production

800-368-1131 www.absolutestandards.com



#### Certified Reference Material CRM

Dec 05/2



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

**CERTIFIED WEIGHT REPORT** 

Part Number:

91980

5.0109

041725Q

Lot Number: 051925 Description: Acrolein

**Expiration Date:** 

061925

J14944-V14948

Formulated By: Lawrence Barry 051925 DATE

Reviewed By:

051925 DATE

Nominal Concentration (µg/mL): NIST Test ID#:

Recommended Storage:

5000

**6UTB** 

Refrigerate (4 °C)

5E-05 Balance Uncertainty

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

10.0

Flask Uncertainty

Expanded

**SDS Information** 

Pedro L. Rentas

(Solvent Safety Info. On Attached pg.) Lot Nominal Purity Uncertainty Target Actual Actual Uncertainty Compound Number Conc (µg/mL) (96) Purity Weight(g) Conc (µg/mL) (+/-) (µg/mL) CAS# OSHA PEL (TWA) Weight(g) LD50

1. Acrolein 103755V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 orl-rat 46mg/kg 0.1 ppm 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, Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately

Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

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

Abundance	A	bundance	Scan 232 (8.927 min): [BSB2]79005.D
250000	8.93	60000	
200000		50000	56
150000		40000	
		30000	
100000		20000	
50000		10000	37
Time>	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00	m/z> <sup>0</sup> 20	44 65 75 85 119 158 169 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

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

. Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (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). Rev 1.0, 2/25/2025

800-368-1131 www.absolutestandards.com



#### Certified Reference Material CRM

Dec 05/2



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

**CERTIFIED WEIGHT REPORT** 

Part Number:

91980

5.0109

041725Q

Lot Number: 051925 Description: Acrolein

**Expiration Date:** 

061925

J14944-V14948

Formulated By: Lawrence Barry 051925 DATE

Reviewed By:

051925 DATE

Nominal Concentration (µg/mL): NIST Test ID#:

Recommended Storage:

5000

**6UTB** 

Refrigerate (4 °C)

5E-05 Balance Uncertainty

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

10.0

Flask Uncertainty

Expanded

**SDS Information** 

Pedro L. Rentas

(Solvent Safety Info. On Attached pg.) Lot Nominal Purity Uncertainty Target Actual Actual Uncertainty Compound Number Conc (µg/mL) (96) Purity Weight(g) Conc (µg/mL) (+/-) (µg/mL) CAS# OSHA PEL (TWA) Weight(g) LD50

1. Acrolein 103755V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 orl-rat 46mg/kg 0.1 ppm 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, Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately

Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

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

Abundance	A	bundance	Scan 232 (8.927 min): [BSB2]79005.D
250000	8.93	60000	
200000		50000	56
150000		40000	
		30000	
100000		20000	
50000		10000	37
Time>	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00	m/z> <sup>0</sup> 20	44 65 75 85 119 158 169 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

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

. Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (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). Rev 1.0, 2/25/2025

800-368-1131 www.absolutestandards.com



#### Certified Reference Material CRM

Dec 05/2



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

**CERTIFIED WEIGHT REPORT** 

Part Number:

91980

5.0109

041725Q

Lot Number: 051925 Description: Acrolein

**Expiration Date:** 

061925

J14944-V14948

Formulated By: Lawrence Barry 051925 DATE

Reviewed By:

051925 DATE

Nominal Concentration (µg/mL): NIST Test ID#:

Recommended Storage:

5000

**6UTB** 

Refrigerate (4 °C)

5E-05 Balance Uncertainty

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

10.0

Flask Uncertainty

Expanded

**SDS Information** 

Pedro L. Rentas

(Solvent Safety Info. On Attached pg.) Lot Nominal Purity Uncertainty Target Actual Actual Uncertainty Compound Number Conc (µg/mL) (96) Purity Weight(g) Conc (µg/mL) (+/-) (µg/mL) CAS# OSHA PEL (TWA) Weight(g) LD50

1. Acrolein 103755V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 orl-rat 46mg/kg 0.1 ppm 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, Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately

Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

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

Abundance	A	bundance	Scan 232 (8.927 min): [BSB2]79005.D
250000	8.93	60000	
200000		50000	56
150000		40000	
		30000	
100000		20000	
50000		10000	37
Time>	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00	m/z> <sup>0</sup> 20	44 65 75 85 119 158 169 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

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

. Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (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). Rev 1.0, 2/25/2025

800-368-1131 www.absolutestandards.com



#### Certified Reference Material CRM

Dec 05/2



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

**CERTIFIED WEIGHT REPORT** 

Part Number:

91980

5.0109

041725Q

Lot Number: 051925 Description: Acrolein

**Expiration Date:** 

NIST Test ID#:

061925

J14944-V14948

Formulated By: Lawrence Barry 051925 DATE

051925

DATE

Recommended Storage:

Refrigerate (4 °C)

Nominal Concentration (µg/mL):

5000

**6UTB** 

5E-05 Balance Uncertainty

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

10.0

Nominal

Flask Uncertainty

Expanded

Reviewed By:

**SDS Information** 

Pedro L. Rentas

(Solvent Safety Info. On Attached pg.) Uncertainty

Compound

Lot Number

Purity Conc (µg/mL) (96)

97

Uncertainty Target Purity

Weight(g)

Actual Weight(g)

0.05170

27

Actual Conc (µg/mL) (+/-) (µg/mL)

CAS# OSHA PEL (TWA) LD50

1. Acrolein

103755V10F

5000

0.5

0.05166

5004.1

52.5 107-02-8 0.1 ppm

orl-rat 46mg/kg

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, Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

Abundance

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

8.93 250000

60000 50000

56

200000

Abundance

150000

100000

50000

Time-->0

30000

40000

20000

10000

37

75 85

119 60 70 80 90 100 110 120 130 140 150 160 170

158 169

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

. Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (see above).

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

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

· 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). Rev 1.0, 2/25/2025

800-368-1131 www.absolutestandards.com



### Certified Reference Material CRM Par 65/21/25



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

CERTIFIED WEIGHT REPORT

Part Number: Lot Number:

Description:

**Expiration Date:** 

91980

051725

Acrolein

061725

2 4184

Lot#

Water 041725Q

Solvent(s):

Reviewed By:

Formulated By:

051725

051725

DATE

DATE

Nominal Concentration (µg/mL): NIST Test ID#:

Recommended Storage:

5000

**6UTB** 

Refrigerate (4 °C)

5E-05 Balance Uncertainty

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

10.0

0.001 Flask Uncertainty

Expanded

**SDS** Information

(Solvent Safety Info. On Attached pg.)

Justin Dippold

Pedro L. Rentas

Lot Nominal Purity Uncertainty Target Actual Actual Uncertainty Compound RM# (96) CAS# OSHA PEL (TWA) LD50 Number Conc (µg/mL) Purity Weight(g) Weight(g) Conc (µg/mL) (+/-) (µg/mL) 1. Acrolein 5 103755R02H 5000 97 0.5 0.05166 0.05175 5008.9 52.5 107-02-8 orl-rat 46mg/kg 0.1 ppm

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 I = 10min.), Temp. 2=200°C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

Scan 232 (8.927 min); IBSB2179005.D

30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

Abundance	A	Abundance	27
250000	8.93	60000	
200000	<b>\</b> /\\_0	50000	56
150000		40000	
150000		30000	
100000		20000	
50000		10000	37
Time>0	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00	m/z> 0	44 65 75 85 119 20 30 40 50 60 70 80 90 100 110 120 1

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

Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (see above).

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

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

· 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). Rev 1.0, 2/25/2025

800-368-1131 www.absolutestandards.com



### Certified Reference Material CRM Par 65/21/25



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

CERTIFIED WEIGHT REPORT

Part Number: Lot Number:

Description:

**Expiration Date:** 

91980

051725

Acrolein

061725

2 4184

Lot#

Water 041725Q

Solvent(s):

Reviewed By:

Formulated By:

051725

051725

DATE

DATE

Nominal Concentration (µg/mL): NIST Test ID#:

Recommended Storage:

5000

**6UTB** 

Refrigerate (4 °C)

5E-05 Balance Uncertainty

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

10.0

0.001 Flask Uncertainty

Expanded

**SDS** Information

(Solvent Safety Info. On Attached pg.)

Justin Dippold

Pedro L. Rentas

Lot Nominal Purity Uncertainty Target Actual Actual Uncertainty Compound RM# (96) CAS# OSHA PEL (TWA) LD50 Number Conc (µg/mL) Purity Weight(g) Weight(g) Conc (µg/mL) (+/-) (µg/mL) 1. Acrolein 5 103755R02H 5000 97 0.5 0.05166 0.05175 5008.9 52.5 107-02-8 orl-rat 46mg/kg 0.1 ppm

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 I = 10min.), Temp. 2=200°C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

Scan 232 (8.927 min); IBSB2179005.D

30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

Abundance	A	Abundance	27
250000	8.93	60000	
200000	<b>\</b> /\\_0	50000	56
150000		40000	
150000		30000	
100000		20000	
50000		10000	37
Time>0	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00	m/z> 0	44 65 75 85 119 20 30 40 50 60 70 80 90 100 110 120 1

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

Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (see above).

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

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

· 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). Rev 1.0, 2/25/2025