

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

8900, Fax: 908 789 8922

Prep Standard - Chemical Standard Summary

Test: VOCMS Group1

Prepbatch ID:

Sequence ID/Qc Batch ID: VX112124,VX112224,

Standard ID:

VP128290,VP128298,VP128632,VP128762,VP128764,VP128766,VP128768,VP129195,VP130430,VP130434,VP131063,VP131134,VP131136,VP131314,VP131317,VP131319,VP131686,VP131690,VP131691,VP131716,VP131717,VP131718,VP131719,VP131720,VP131721,VP131722,VP131746,VP131748,VP131749,VP131750,

Chemical ID:

V12794,V12798,V12966,V13390,V13444,V13448,V13462,V13463,V13581,V13707,V13797,V13810,V13820,V13917,V13918,V13964,V14018,V14019,V14096,V14107,V14108,V14125,V14143,V14145,V14147,V14148,V14150,V14154,V14171,V14172,V14178,V14203,V14206,V14215,V14288,V14289,V14436,V14443,V14573,V14574,V14575,V14578,V14579,W3112,





VOC STANDARD PREPARATION LOG

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

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

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





VOC STANDARD PREPARATION LOG

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

Recipe ID	NAME.	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>VP128762</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

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





VOC STANDARD PREPARATION LOG

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

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

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





VOC STANDARD PREPARATION LOG

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
253	8260 Working STD (BCM)-First source, 20PPM	<u>VP128768</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024

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

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





VOC STANDARD PREPARATION LOG

617 8260 Surrogate, 400PPM VP130430 09/20/2024 02/28/2025 Semsettin Yesilyurt None None 09/26/2024	Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
	617	8260 Surrogate, 400PPM	<u>VP130430</u>	09/20/2024	02/28/2025		None	None	09/26/2024

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
1738	8260 surrogate 20 ppm	<u>VP130434</u>	09/20/2024	02/28/2025	Semsettin Yesilyurt	None	None	10/02/2024

FROM 0.02000ml of V13707 + 24.99000ml of V14145 = Final Quantity: 25.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
259	8260 Calibration Working STD Mix-Second source, 160PPM	<u>VP131063</u>	10/23/2024	12/01/2024	Semsettin Yesilyurt	None	None	10/28/2024

FROM

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>VP131134</u>	10/28/2024	12/07/2024	Semsettin Yesilyurt	None	None	10/30/2024

FROM

 $0.40000ml\ of\ V13444\ +\ 1.00000ml\ of\ V13797\ +\ 1.00000ml\ of\ V13810\ +\ 1.00000ml\ of\ V14018\ +\ 1.00000ml\ of\ V14019\ +\ 1.000000ml\ of\ V14019\ +\ 1.0000000ml\ of\ V14019\ +\ 1.000000ml\ of\ V14019\ +\ 1.000000ml\ of\ V14019\ +\ 1.000000ml\ of\ V14019\ +\ 1.0000000ml\ of\ V14019\$

1.00000ml of V14107 + 1.00000ml of V14108 + 1.00000ml of V14171 + 1.00000ml of V14172 + 1.00000ml of V14203 +

1.00000ml of V14436 + 1.00000ml of V14443 + 1.50000ml of V14206 + 1.50000ml of V14215 + 10.60000ml of V14150 = 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	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
245	8260 Calibration Working STD Mix-First source, 20PPM	<u>VP131136</u>	10/28/2024	12/07/2024	Semsettin Yesilyurt	None	None	10/30/2024

FROM	17.50000ml of V14150 + 2.50000ml of VP131134	= 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>VP131314</u>	11/07/2024	11/29/2024	Semsettin Yesilyurt	None	None	11/26/2024

FROM 0.60000ml of V14579 + 1.00000ml of V14578 + 8.40000ml of V14150 = Final Quantity: 10.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID	NAME_	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
51	8260 Working STD (Acrolein) -first source, 800PPM	<u>VP131317</u>	11/07/2024	11/30/2024	Semsettin Yesilyurt	None	None	11/13/2024

FROM	1.00000ml of V14575 + 1.50000ml of V14573 +	· 1.50000ml of V14574 + 21.00000ml of V14150 = Final Quantity: 25.000 ml
------	---	--

Recipe ID	NAME.	<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>VP131319</u>	11/07/2024	11/30/2024	Semsettin Yesilyurt	None	None	11/13/2024

FROM 17.50000ml of V14150 + 2.50000ml of VP131317 = Final Quantity: 20.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID 589	NAME BFB TUNE CHECK	NO.	Prep Date 11/20/2024	Expiration Date 11/21/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipettelD</u> None	Supervised By Mahesh Dadoda
	BIB TONE OFFECTOR	<u> </u>	11/20/2024	11/21/2024	deniir danene	TYONG	None	11/23/2024

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

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP131690</u>	11/21/2024	11/22/2024	John Carlone	None	None	
								11/23/2024

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



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

VOC STANDARD PREPARATION LOG

Recipe ID 620	NAME 50 PPB CCC, 8260-Water	NO. VP131691	Prep Date 11/21/2024	Expiration Date 11/22/2024	Prepared By John Carlone	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 11/23/2024
FROM	39.94450ml of W3112 + 0.00500ml o	f VP128766	+ 0.00500ml	of VP130430 +	+ 0.00800ml of \	/P128298 + 0.0	1250ml of	

39.94450ml of W3112 + 0.00500ml of VP128766 + 0.00500ml of VP130430 + 0.00800ml of VP128298 + 0.01250ml of VP128762 + 0.01250ml of VP131134 + 0.01250ml of VP131317 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
334	1 PPB ICC, 8260-Water	<u>VP131716</u>	11/21/2024	11/22/2024	John Carlone	None	None	
								11/23/2024

FROM 39.98200ml of W3112 + 0.00200ml of VP128764 + 0.00200ml of VP128768 + 0.00200ml of VP130434 + 0.00200ml of VP131136 + 0.00200ml of VP131319 + 0.00800ml of VP128298 = Final Quantity: 40.000 ml





FROM

VOC STANDARD PREPARATION LOG

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
335	5 PPB ICC, 8260-Water	<u>VP131717</u>	11/21/2024	11/22/2024	John Carlone	None	None	11/23/2024

39.94200ml of W3112 + 0.00800ml of VP128298 + 0.01000ml of VP128764 + 0.01000ml of VP128768 + 0.01000ml of VP130434 + 0.01000ml of VP131136 + 0.01000ml of VP131319 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
337	20 PPB ICC, 8260-Water	<u>VP131718</u>	11/21/2024	11/22/2024	John Carlone	None	None	
								11/23/2024

FROM 39.97000ml of W3112 + 0.00200ml of VP128766 + 0.00200ml of VP130430 + 0.00500ml of VP128762 + 0.00500ml of VP131134 + 0.00500ml of VP131317 + 0.00800ml of VP128298 = 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>PipettelD</u>	Supervised By Mahesh Dadoda
380	50 PPB ICC, 8260-Water	<u>VP131719</u>	11/21/2024	11/22/2024	John Carlone	None	None	11/23/2024

39.94450ml of W3112 + 0.00500ml of VP128766 + 0.00500ml of VP130430 + 0.00800ml of VP128298 + 0.01250ml of VP131134 + 0.01250ml of VP131317 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
381	100 PPB ICC, 8260-Water	<u>VP131720</u>	11/21/2024	11/22/2024	John Carlone	None	None	
								11/23/2024

FROM 39.89700ml of W3112 + 0.00800ml of VP128298 + 0.01000ml of VP128766 + 0.01000ml of VP130430 + 0.02500ml of VP128762 + 0.02500ml of VP131134 + 0.02500ml of VP131317 = Final Quantity: 40.000 ml



FROM

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

Fax: 908 789 8922

VOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
382	150 PPB ICC, 8260-Water	<u>VP131721</u>	11/21/2024	11/22/2024	John Carlone	None	None	11/23/2024
								11/23/2024

39.84950ml of W3112 + 0.00800ml of VP128298 + 0.01500ml of VP128766 + 0.01500ml of VP130430 + 0.03750ml of VP128762 + 0.03750ml of VP131134 + 0.03750ml of VP131317 = Final Quantity: 40.000 ml

Recipe	NAME	NO	Draw Data	Expiration	Prepared By	SaalalD	DinettelD	Supervised By
<u>ID</u> 385	NAME 50 PPB ICV, 8260-Water	NO. VP131722	Prep Date 11/21/2024	<u>Date</u> 11/22/2024	<u>By</u> John Carlone	<u>ScaleID</u> None	PipetteID None	Mahesh Dadoda
								11/23/2024

FROM 39.92950ml of W3112 + 0.00500ml of VP130430 + 0.00800ml of VP128298 + 0.01250ml of VP128632 + 0.01250ml of VP131063 + 0.01250ml of VP131314 + 0.02000ml of VP129195 = Final Quantity: 40.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
247	8260 Internal Standard, 250PPM	<u>VP131746</u>	11/22/2024	05/18/2025	Semsettin Yesilyurt	None	None	11/23/2024

FROM	0.50000ml of V14289 + 49.50000ml of V14154 = Final Quantity: 50.000 ml	ı
------	--	---

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP131748</u>	11/22/2024	11/23/2024	John Carlone	None	None	
								11/23/2024

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





VOC STANDARD PREPARATION LOG

Recipe ID 620	NAME 50 PPB CCC, 8260-Water	NO. VP131749	Prep Date 11/22/2024	Expiration Date 11/23/2024	Prepared By John Carlone	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 11/23/2024		
FROM	FROM 39.94450ml of W3112 + 0.00500ml of VP128766 + 0.00500ml of VP130430 + 0.00800ml of VP131746 + 0.01250ml of									

VP128762 + 0.01250ml of VP131134 + 0.01250ml of VP131317 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
620	50 PPB CCC, 8260-Water	<u>VP131750</u>	11/22/2024	11/23/2024	John Carlone	None	None	
								11/23/2024

FROM 39.94450ml of W3112 + 0.00500ml of VP128766 + 0.00500ml of VP130430 + 0.00800ml of VP131746 + 0.01250ml of VP128762 + 0.01250ml of VP131134 + 0.01250ml of VP131317 = Final Quantity: 40.000 ml



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	121321	12/13/2024	06/25/2024 / SAM	03/30/2022 / SAM	V12794
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	121321	12/13/2024	06/25/2024 / SAM	03/30/2022 / SAM	V12798
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	70046 / Bromochloromethane Std. sol/methanol 1000ppm	070122	01/22/2025	07/22/2024 / SAM	07/06/2022 / SAM	V12966
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30067 / BFB tuneing solution	A0191805	12/08/2024	12/08/2023 / SAM	01/13/2023 / SAM	V13390
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0181905	12/14/2024	06/14/2024 / SAM	01/23/2023 / SAM	V13444
		1	T	Data Organis II (Received Date /	Chamta sh
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	01/01/2025	07/01/2024 / SAM	01/27/2023 / SAM	V13462
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	01/01/2025	07/01/2024 / SAM	01/27/2023 / SAM	V13463
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	111722	12/25/2024	06/25/2024 / SAM	01/30/2023 / SAM	V13581
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2]	A0196865	06/10/2025	06/10/2024 / SAM	04/12/2023 / SAM	V13707
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Deetel	30042 / VOA Mix,500	A0194279	04/17/2025	10/17/2024 /	05/31/2023 /	V13797
Restek	series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml			SAM	SAM	
Supplier	Calibration Std #1 gases,	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0197644	04/14/2025	10/14/2024 / SAM	05/31/2023 / SAM	V13820
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0193887	04/14/2025	10/14/2024 / SAM	07/24/2023 / SAM	V13917
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0193887	04/17/2025	10/17/2024 / SAM	07/24/2023 / SAM	V13918
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0199224	12/31/2024	09/04/2024 / SAM	09/25/2023 / SAM	V13964
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	03/16/2025	09/16/2024 / SAM	11/22/2023 / SAM	V14018
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	03/16/2025	09/16/2024 / SAM	11/22/2023 / SAM	V14019



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	A0205177	03/04/2025	09/04/2024 / SAM	12/22/2023 / SAM	V14096
	LOTS		1	1	1	l
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205179	04/17/2025	10/17/2024 / SAM	12/22/2023 / SAM	V14107
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	A0205179	03/16/2025	09/16/2024 / SAM	12/22/2023 / SAM	V14108
	LOTS					,
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	04/17/2025	10/17/2024 / SAM	01/17/2024 / SAM	V14125
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	01/22/2025	07/22/2024 / SAM	02/06/2024 / SAM	V14143
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	02/28/2025	08/29/2024 / SAM	02/06/2024 / SAM	V14145



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	12/11/2024	06/11/2024 / pedro	02/06/2024 / SAM	V14147
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	11/23/2024	05/23/2024 / pedro	02/06/2024 / SAM	V14148
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	04/23/2025	10/23/2024 / Rajesh	02/06/2024 / SAM	V14150
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	05/18/2025	11/18/2024 / pedro	02/06/2024 / SAM	V14154
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
A I I 4 -	95317 / Universal VOA	021624	03/16/2025	09/16/2024 /	02/20/2024 /	\/4.44 .7 4
Absolute Standards, Inc.	Mega Mix (Min order = 5)			SAM	SAM	V14171
	Mega Mix (Min order = 5) ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech



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	04/17/2025	10/17/2024 / SAM	02/20/2024 / SAM	V14178
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	04/17/2025	10/17/2024 / SAM	02/28/2024 / SAM	V14203
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	04/17/2025	10/17/2024 / SAM	02/28/2024 / SAM	V14206
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	03/16/2025	09/16/2024 / SAM	02/28/2024 / SAM	V14215
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Supplier Restek	ItemCode / ItemName 555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	Lot # A0210184		1		
	555581 / Custom Standard, 8260 Internal Std	1	Date	Opened By 06/10/2024 /	Received By 04/15/2024 /	Lot #



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	09/30/2025	09/16/2024 / SAM	08/15/2024 / SAM	V14436
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	03/16/2025	09/16/2024 / SAM	08/15/2024 / SAM	V14443
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	103024	11/30/2024	11/04/2024 / SAM	11/01/2024 / SAM	V14573
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	103024	11/30/2024	11/04/2024 / SAM	11/01/2024 / SAM	V14574
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	103024	11/30/2024	11/04/2024 / SAM	11/01/2024 / SAM	V14575
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	102924	11/29/2024	11/04/2024 / SAM	11/01/2024 / SAM	V14578



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	102924	11/29/2024	11/04/2024 / SAM	11/01/2024 / SAM	V14579

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

71 Certified Reference Material CRM



TIC: 95319.D

1511-885-008 Absolute Standards, Inc.

www.absolutestandards.com

Abundance

T) CV2# O2HV bET (LNV) FD20	Conc (µg/mL) (++-) (µg/mL	Weight(g)	(g)trigisW	Purity	(%)	Conc (µg/mL)	Number	KM#	Compound
(Expanded Actual Discretainty	Actual	Target	Uncertainty	Purity	IsnimoM	101		
				Flask Uncertainty	150.0	100.0	ed to (mL):	tulib bas b	Weight(s) shown below were combined
Jedu Jean 10162	Reviewed		J	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):	3			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	A/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	galvem0381 ten-ho
.6	elininoigor	346	1395468	20000	66	S.0	170S0.S	2.02150	8.7000S	6.18	107-12-0	Y/N	gAgmeE isn-ho
.8	Methyl tert-butyl ether (MTBE)	S09	21880	2000	66	S.0	0.20207	0.20227	2002.0	2.8	1634-04-4	AW	gs/g4 tsr-no
·Z	метhylcyclohexane	1627	Veelopahs	2000	66	S.0	70S0S.0	0.20230	2002.3	2.8	S-78-801	Y/N	orl-mus 2250mg/kg
'9	-lexachloroethane	166	12604HBV	2000	66	S.0	0.20207	0.20221	4.100S	S.8	1-27-78	(nbis)(H8/Em/gm01) mqq t	бжбш0.46) бd6-µо
.6	ensxoid-4,1	EYE	03853KE	40000	66	S.0	4.04142	4.04213	0.70004	162.5	1-16-621	(nixis)(H8/Em/gm0e) mqq 3S	вметооте вит-но
.4	Oi-isopropyl ether (DIPE)	Z86	00412MX	2000	66	S.0	70202.0	0.20227	S00S.0	2.8	108-20-3	500 ppm (2100mg/m3/8H)	gAlgm0748 far-ho
3.	Cyclohexane	1053	28930	2000	66	S.0	0.20207	0.20222	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,"

		00.00	00.22	00.02	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		100		
46.44	Hexachloroethane			844	· ·				ellebrane and and and and and and and and and and	SH OF	13,57	į	200000
₽8.9Z	enexoiG-₽,1			100					24,85	T			
24.84	Methylcyclohexane									4554544	80		10000001
20.83	1-Chlorobutane			29,12						THE STATE OF	950		
82.02	Cyclohexane								8550000		1	ì	1200000
20.17	nsruìorbyderdeT				50.				2010		13,79	į	
18.53	elitinoiqorq	- 1					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	1	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	at Printing Office, Was	animayoo 'e	no 1/671 mo	r recument	E CTAT						1	4000000
MST Measurement	for Evaluating and Expressing the Uncertainty or							3	8 97			[0000001
	at and under appropriate laboratory conditions.		opule, should	ns gninaqo 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
7h	de tento	021524
Reviewed By:	Pedro L. Rentas	DATE

	NIST Test ID	#: BUTB			5E-05	Balance Uncerta	listy							KEASEAGO	ву.	FOUIU L. MOTHOS	DATE
	Weight(s) shown below were combine	ed and dilute (RM#)	d to (mL):	100.0 Dil.	0.021 Initial	Flash 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)	orl-rat 2450mg/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	0.20042	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 pam(26mg/m3/6H)(skin)	orl-rat 75mg/kg
8.		(0489)	15241EB	NA	NA	NA.	2000	99.5	0.2	NA 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)(skin)	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	96-95-3	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	76-13-1	1000 ppm (7600mg/m3/6H)	orl-rat 43g/kg
17.	Bromodichloromethane	35171	101623	0.05	5.00	40001.7	2000	NA	NA NA	0.017	NA NA	NA NA	1999.6	22.9	75-27-4	N/A N/A	orf-rat 916mg/kg orf-rat 848mg/kg
18.	Dibromochloromethana	35171	101623	0.05	5.00	40002.1	2000	NA	NA NA	0.017	NA NA	NA NA	1999.6 1999.7	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	156-60-5	N/A	orl-rat 1235mg/kg
20.	trans-1,2-Dichloroethene	35171	101823	0.05	5.00	40002.4	2000	NA NA	NA NA	0.017	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	2000	NA NA	NA.	0.017	NA.	NA.	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	orl-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-rat 933mg/kg
23. 24.	Bromoferm Carbon letrachloride	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	1990.8	20.5	74-95-3	N/A	ori-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	360 ppm (1900mg/m3/6H)	orl-ret 10300mg/kg
31.	1,2-Dibremo-3-chloropropane	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	40024.8	2000	NA	NA	0.017	NA	NA	2000.7	22.9	108-83-4	20 ppm (8H)	orf-rat 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)	orl-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-rat 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	2000.1	23.0	10081-01-5	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	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)	ori-rat 82mg/kg
39.	Hexachloro-1,3-butadiene	35161 35161	112322	0.05	5.00	40021.9	2000	NA	NA NA	0.017	NA.	NA	2000.1	22.9	630-20-6	N/A	orl-ret 670mg/kg
41.	1,1,2-Tetrachioroethane 1,1,2-Tetrachioroethane	35161	112322	0.05	5.00	40007.5	2000	NA	NA.	0.017	NA.	NA	1999.9	22.9	79-34-5	5 ppm (35mg/m3/9H)(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-res 149.flmg/kg
45.	- Indiana and the same of the	35162	050823	0.05	5,00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 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-rat 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	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	99-87-6	N/A 10-ppm (50mg/m3/8H)	orl-rat 4750mg/kg orl-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 1999.7	22.9	100-42-5	100 ppm (somg/ma/ers)	ori-rat 5000mg/kg
51.	Styrene	35162	050823	0.05	5.00	40004.8	2000	NA	NA NA	0.017	NA NA	NA NA	1999.8	22.9	108-88-3	200 ppm	orl-rat 5000mg/kg
52.	Toluene	35162	050823	0.05	5.00	40006.2	2000	NA NA	NA NA	0.017	NA NA	NA NA	1999.7	22.9	87-61-6	N/A	ipr-mus 1390mg/kg
53.	1,2,3-Trichlorobenzene	35162	050823 050823	0.05	5.00	40003.1 40006.8	2000	NA NA	NA NA	0.017	NA NA	NA.	1999.8	22.9	120-62-1	5 ppm (CL) (40mg/m3)	ori-rat 756mg/kg
20.4			000023		5.00	40001.6	2000	NA	NA	0.017	NA.	NA.	1999.6	23.0	95-63-6	N/A	ori-rat 5g/kg
54.	1,2,4-Trichlorobenzene	35162	050000					NA	NA.	0.017	NA	NA	1999.8	22.9	108-67-8	N/A	orl-rat 5000mg/kg
55.	1,2,4-Trimethylbenzene	35162	050823	0.05			2000										orl-rat fig/kg
55. 56.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	35162 35162	050823	0.05	5.00	40006.7	2000				NA	NA	1999.8	22.9	108-38-3	100 ppm (435mg/m3/8H)	044-1401 milessing
55. 56. 57.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene	35162 35162 35162	050823 050823	0.05	5.00	40006.7 40005.8	2000	NA NA	NA NA	0.017		NA NA	1999.8 1999.6	22.9 22.9	108-38-3 98-06-6	100 ppm (435mg/m3/8H) N/A	N/A
55. 56. 57. 58.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene	35162 35162 35163	050823 050823 101923	0.05 0.05 0.06	5.00 5.00 5.00	40006.7 40005.8 40001.2		NA	NA	0.017	NA						
55. 56. 57. 58. 59.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene sec-Butyl benzene	35162 35162 35162 35163 35163	050823 050823 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4	2000 2000 2000	NA NA	NA NA	0.017 0.017	NA NA	NA	1999.6	22.9	98-06-6	N/A	N/A ort-rat 2240mg/kg ort-rat 2290mg/kg
55. 56. 57. 58. 59.	1,2,4-Trimethy/benzene 1,3,5-Trimethy/benzene m-Xylene tert-Butyl benzene sec-Butyl benzene Chlorobenzene	35162 35162 35162 35163 35163 35163	050823 050823 101923 101923 101923	0.05 0.05 0.06	5.00 5.00 5.00	40006.7 40005.8 40001.2	2000 2000	NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA	1999.6 1999.6	22.9 22.9	98-06-6 135-96-8 108-90-7 95-49-8	N/A N/A	NVA ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 3900mg/kg
55. 56. 57. 58. 59. 80. 61.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene terl-Butyl benzene sec-Butyl benzene Chlorobenzene 2-Chlorobusee	35162 35162 35162 35163 35163	050823 050823 101923 101923	0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA NA NA	1999.6 1999.6 1999.7 1999.5 1999.7	22.9 22.9 22.9 22.9 22.9	98-06-6 135-96-8 108-90-7 95-49-8 108-43-4	N/A N/A 75 ppm (350mg/m3/8H) 60 ppm (250mg/m3/8H) N/A	N/A ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 2900mg/kg ort-rat 2100mg/kg
55. 56. 57. 58. 59. 60. 61.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Burjt berizene sec-Burjt benzene Chlorobenzene 2-Chlorotoluene 4-Chlorotoluene	35162 35162 35162 35163 35163 35163 35163	050823 050823 101923 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	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	1999.6 1999.6 1999.7 1999.5 1999.7	22.9 22.9 22.9 22.9 22.9 22.9	98-08-6 135-98-8 108-90-7 95-49-8 106-43-4 85-50-1	N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL)	NVA orl-rat 2240mg/kg orl-rat 2290mg/kg orl-rat 2100mg/kg orl-rat 2100mg/kg
55. 56. 57. 58. 59. 60. 61. 62. 63.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene terl-Butyl benzene sec-Butyl benzene Chlorobenzene 2-Chlorobusee	35162 35162 35162 35163 35163 35163 35163 35163	050823 050823 101923 101923 101923 101923 101923	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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	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	NA NA NA NA NA NA	NA NA NA NA NA NA	1999.8 1999.6 1999.7 1999.5 1999.7 1999.7	22.9 22.9 22.9 22.9 22.9 22.9 23.0	98-08-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1	N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A	NVA ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 2100mg/kg ort-rat 2100mg/kg ort-rat 500mg/kg igr-mus 1062mg/kg
55. 56. 57. 58. 59. 60. 61. 62. 63.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Butyl benzene sec-Butyl benzene sec-Butyl benzene Chlorotoluene 4-Chlorotoluene 1,2-Dichlorobenzene	35162 35162 35162 35163 35163 35163 35163 35163	050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40003.3 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 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 NA	1999.6 1999.7 1999.7 1999.7 1999.7 1999.6 1999.6	22.9 22.9 22.9 22.9 22.9 22.9 22.9 23.0 22.9	98-06-6 135-96-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1 108-46-7	N/A N/A N/A 75 ppm (356mg/m3/8H) 50 ppm (256mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A 75 ppm (450mg/m3/8H)	NVA ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 2100mg/kg ort-rat 2100mg/kg ort-rat 500mg/kg ort-rat 500mg/kg ort-rat 500mg/kg
55. 56. 57. 58. 59. 80. 61. 62. 63. 64. 65.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene ten-Butyl benzene sec-Butyl benzene Chlorobenzene 2-Chlorotoluene 4-Chlorotoluene 1,3-Dichlorobenzene 1,3-Dichlorobenzene	35162 35162 35163 35163 35163 35163 35163 35163 35163	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	40006.7 40005.8 40001.2 40002.4 40003.8 40003.3 40003.8 40003.8 40001.7 40001.8 40000.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA	NA NA 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 1999.7 1999.7 1999.7 1999.7 1999.7 1999.6 1999.6	22.9 22.9 22.9 22.9 22.9 22.9 23.0 22.9 23.0	98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1 108-48-7 98-82-8	NVA NVA 75 ppm (350mg/m3/8H) 50 ppm (350mg/m3/8H) 50 ppm (350mg/m3/1H) 60 ppm (300mg/m3/1H) 75 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H)	nVA ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 3290mg/kg ort-rat 3290mg/kg ort-rat 500mg/kg ort-rat 500mg/kg ort-rat 500mg/kg ort-rat 1400mg/kg
55. 56. 57. 58. 59. 80. 61. 62. 63. 64. 65.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Burjt benzene soo-Burjt benzene Chlorobenzene 2-Chlorotokuene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163	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	40006.7 40005.8 40001.2 40002.4 40003.8 40003.3 40003.3 40003.8 40001.7 40001.8 40000.8 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	NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA	1999.6 1999.7 1999.5 1999.7 1999.7 1999.6 1999.6 1999.5 1999.5	22.9 22.9 22.9 22.9 22.9 22.9 23.0 22.9 23.0 22.9 23.0	98-08-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1 108-46-7 98-82-8 103-65-1	NVA NVA 75 ppm (250mg/m3/8H) 80 ppm (250mg/m3/8H) NVA 50 ppm (350mg/m3/8H) NVA 75 ppm (450mg/m3/8H) 80 ppm (245mg/m3/8H)	N/A ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 2900mg/kg ort-rat 2900mg/kg ort-rat 500mg/kg ort-rat 500mg/kg ort-rat 600mg/kg ort-rat 600mg/kg ort-rat 6040mg/kg
55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68.	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m-Xylene tert-Burjt benzene sec-Butyl benzene sec-Butyl benzene Chlorobenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163	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	40006.7 40005.8 40001.2 40002.4 40003.8 40003.3 40003.8 40003.8 40001.7 40001.8 40000.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA	NA NA 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 1999.7 1999.7 1999.7 1999.7 1999.7 1999.6 1999.6	22.9 22.9 22.9 22.9 22.9 22.9 23.0 22.9 23.0	98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 541-73-1 108-48-7 98-82-8	NVA NVA 75 ppm (350mg/m3/8H) 50 ppm (350mg/m3/8H) 50 ppm (350mg/m3/1H) 60 ppm (300mg/m3/1H) 75 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H)	nVA ort-rat 2240mg/kg ort-rat 2290mg/kg ort-rat 3290mg/kg ort-rat 3290mg/kg ort-rat 500mg/kg ort-rat 500mg/kg ort-rat 500mg/kg ort-rat 1400mg/kg

1 of 2

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

Part # 95317

^{*}The cardine value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.

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

*Standards are prepared gravimetrically using butaness 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]"

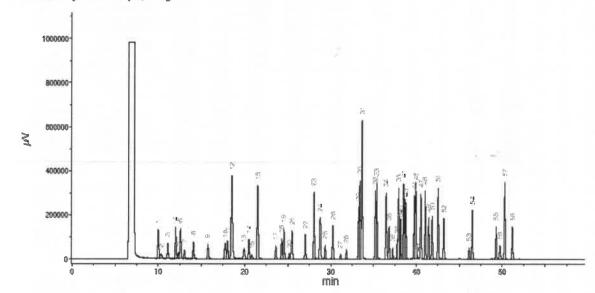
Run Length: 60.00 min, 35998 points at 10 points/second. Created: Sat, Feb 17, 2024 at 10:04:27 AM. Sampled: Sequence "021624-GC5M1", Method "GC5-M1". Analyzed using Method "GC5-M1".

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



	Manne	
Peak 2	Marrie	(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	1,4-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

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

CERTIFIED WEIGHT REPORT

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

69 components

Expiration Date: 021627 nended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 6UTB

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

100.0 0.021 15-11-11

5E-05 Balance Uncertainty

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

Weight(s) shown below were combine	ed and dilute	ad to (mL):	100.	0 0.02	1 Flask Uncertain	etw									T SON E. I FORMER	
Compound	(RMII) Part Numbe	Lat	De.	fritte	l Irillial	Nominal Conc (µg/mL)	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information ent Safety info. On Atta	ched pg.)
The state of the s	P det Petrope	R THATTAPET	Pilitato	e voi. (m	c) Conc.(ug/ms.)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mt.)	Weight(g)	Weight(g)	Canc (µg/mL) (+/-) (µg/mL) CAS#	OSHA PEL (TWA)	L050
Acetonitrile	(0324)	021644	NA	NA	NA.	2000	99.99	0.2	NA	0.20007	0.00000	2004.0				
Allyl chloride (3-Chloropropene)	(0325)	102396	NA		NA.	2000	99	0.2	NA	0.20207	0.20020	2001.3	8.1	75-05-8	49 ppm (70mg/m3/6H)	orl-rat 2460
Carbon disulphide	(0060)	MKCR8581			NA	2000	99,99	0.2	NA	0.20207	0.20221	2001.4	8.2	107-05-1	1 ppm (3mg/m3/8H)	cri-rat 700r
cis-1,4-Dichloro-2-butene	(1198)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058			8.1	75-15-0	4 ppm (12mg/m3) (skin)	ori-rat 1200
trans-1,4-Dichloro-2-butene	(0486)	MKBP8041\		NA	NA	2000	96.5	0.2	NA.	0.20731	0.21069	2001.1	8,5	1478-11-5		N/A
Diethyl ether		1K18CAS000		NA	NA	2000	99.9	0.2	NA.	0.20025		2001.7	8.4	110-57-6	N/A	NA
Ethyl methacrylate	(0381)	06126PX	NA	NA	NA	2000	99	0.2	NA NA		0.20040	2001.5	8.1	80-29-7	NA	N/A
lodomethane	(0489)	SH8F8718V		NA	NA.	2000	99.5	0.2	NA NA	0.20207	0.20230	2002.3	8.2	97-63-2	N/A	orf-ret 14800
2-Methyl-1-propanol	(0445)	15241EB	NA	NA	NA.	2000				0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mg/m3/8H)(sidn)	
Methacrylonitrile	(0442)	00427ET	NA	NA.	NA.	2000	99.5	0.2	NA	0.20106	0.20120	2001.4	8.1	78-83-1	60 ppm (150mg/m3/8H)	orl-rat 2480r
Methyl acrylate	(1075)	SHBI00679		NA			99	0.2	NA	0.20207	0.20221	2001.4	8.2	126-98-7	1 ppm (3mg/m3/8H)(sldn)	orl-rat 120v
Methyl methacrylate		MKBW5137\			NA NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	ori-ret 277m
Nitrobenzene	(0228)			NA	NA NA	2000	99.9	0.2	NA NA	0.20025	0.20041	2001.6	8.1	80-62-6	100 ppm (410mg/m3/8H)	ori-rat 7872
2-Nitropropane	(0461)	01213TV	NA	NA.	NA	2000	99	0.2	NA NA	0.20207	0.20220	2001.3	8.2	96-95-3	1 ppm (5mg/m3/8H)(skin)	orl-rat 780m
Pentactiloroethane		14002JX	NA	NA	NA NA	2000	97.3	9.0	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35mg/m3/8H)	orl-red 720m
1,1,2-Trichlorotrisuoroethane	(0450)	HGA01	NA	NA	NA	2000	98	0,2	NA NA	0.20413	0.20430	2001.6	8.3	76-01-7	NVA	N/A
Bromodichioromethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA.	0.20207	0.20225	2001.8	8,2	76-13-1	1000 ppm (7600mg/m3/8H)	orl-rat 43g
	35171	101623	0.05	5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	ori-ret 916m
Dibromochioromethane	35171	101823	0.05	6.00	40002.1	2000	NA	NA	0.017	NA	NA	1999.6	23.0	124-48-1	NA	orl-rat 640m
Sis-1,2-Dichloroethene	35171	101823	0.05	5.00	40003,1	2000	NA	NA	0.017	NA	NA	1999.7	22.9	158-59-2	NA	N/A
rans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA.	NA	0.017	NA	NA	1999.8	23.0	156-60-5	N/A	ort-rail 1235r
Methylene chloride	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA	1999.6	22,9	75-09-2	500 ppm	ori-rat 820m
,1-Dichloroethene	32251	102023	0.10	10,00	20001.6	2000	NA	NA	0.042	NA	NA	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat soun
Promeform	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (sldn)	ori-rat 200n
arbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	56-23-5	The state of the s	
hioroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA.	2001.9	20.5	67-68-3	2 ppm (12.6mg/m3/8H)	ori-rat 2350
Dibromomethana	95321	020724	0.10	10.00	20002.9	2000	NA	NA.	0.042	NA	NA NA	1999.8	20.5		50 ppm (240mg/m3) (CL)	orf-ret 908m
,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA.	NA.	1999.8		74-95-3	N/A	orl-ret 106m
,2-Dichloropropane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA NA		20.5	75-34-3	100 ppm	orl-rat 725m
elvachloroethene	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA.		1999.8	20.4	594-20-7	N/A	NA
,1,1-Trichloroethane	95321	020724	0.10	10.00	20003.0	2000	NA	NA			NA	2019.6	20.6	127-18-4	26 ppm (170mg/m3/8H)(final)	
2-Dibromo-3-chloropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.042	NA	NA .	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/8H)	orl-rat 10300
2-Dibromoethane	35161	112322	0.05	5.00	40024.8	2000			0.017	NA	NA	2000.3	22.9	96-12-8	0.001 ppm	ori-nat 170m
2-Dichlorgethane	35161	112322	0.08	5.00	40018.0	2000	NA	NA	0.017	NA	NA	2000.7	22.9	106-93-4	20 ppm (8H)	orf-rat 108m
2-Dichloropropene	35161	112322	0.05	5.00			NA	NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670m
3-Dichloropropane	35161	112322	0.05		40051.0	2000	NA	NA	0.017	NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8H)	ori-rat 1947m
1-Dichloropropene	35161	112322	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600
8-1,3-Dichioropropena	35161	112322	0.05	5.00	40012.1	2000	NA	NA	0.017	NA	NA	2000.1	29.7	563-56-6	NA	NA
ans-1,3-Dichloropropene	35161				40010.0	2000	NA	NA	0.017	NA	NA	2000.0	23.0	10061-01-5	N/A	N/A
exachloro-1,3-butadiene		112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4	23.0 1	10061-02-8	N/A	N/A
	35181	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/m3/8H)	ori-rat 62mg
1,1,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1	22.9	630-20-6	N/A	orl-rad 670m
1.2.2-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)(aldri)	orl-rat 800m
1,2-Trichloroethane	35161	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	ori-rat 836m
ichloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/9H)	orl-mus 2402r
2,3-Trichloropropane	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4	10 ppm (80mg/m3/8H)	ori-rat 149.6r
nzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894n
omobenzene	36162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8		108-86-1	N/A	orl-rat 2699m
Butyl benzene	35162	060823	0.05	5.00	40003.B	2000	NA	NA	0.017	NA	NA	1999.7		104-51-8	N/A	
hyl benzene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		100-41-4	190 ppm (435mg/m3/8H)	N/A
sopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	99-87-6		orl-rat>2000r
phihalene	35162	050823	0.05	5.00	40006.2		NA	NA	0.017	NA	NA.	1999.8	22.9		N/A	orl-rat 4750m
rrene	35162	050823	0.05	5.00	40004.8		NA	NA	0.017	NA	NA NA	1999.7		91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490m
uene	35162	050823	0.05	5.00	40006.2		NA	NA	0.017	NA	NA.			100-42-5	100 ppm	orl-rat 5000m
	35162	050823	0.05	5.00	40003.1		NA	NA	0.017			1999.8		108-88-3	200 ppm	orl-ret 5000m
3-Trichlorobenzene		050823	0.05	5.00	40006.8		NA	NA NA	0.017	NA NA	NA NA	1999.7		87-61-6	N/A	lor-mus 1390r
			Jan Will	5.00	40001.6		NA NA	NA NA		NA	NA	1999.8		120-82-1	5 ppm (CL) (40mg/m3)	ori-rat 750m
,4-Trichlorobenzene	35162		0.05			5000			0.017	NA NA	NA NA	1999.6		95-63-6	N/A	ort-rat 5g/
,4-Trichlorobenzene ,4-Trimethylbenzene	35162 35162	050823	0.05			2000										
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene	35162 35162 35162	050823 050823	0.05	5.00	40006.7		NA	NA	0.017			1999.6		108-67-8	N/A	OR-198 5000m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (ylene	35162 35162 35162 35162	050823 050823 050823	0.05 0.05	5.00	40006.7 40005.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-38-3	N/A 100 ppm (435mg/m3/8H)	
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Kylene -Butyl benzene	35162 35162 35162 35162 35163	050823 050823 050823 101923	0.05 0.05 0.05	5.00 5.00 5.00	40006.7 40005.8 40001.2	2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	22.9 22.9	108-38-3 98-06-6		
A-Trichlorobenzene 4-Trimethylbenzene 5-Trimethylbenzene (ylene -Butyl benzene -Butyl benzene	35162 35162 35162 35162 35163 35163	050823 050823 050823 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40008.7 40005.8 40001.2 40002.4	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.8	22.9 22.9	108-38-3	100 ppm (435mg/m3/8H)	orl-rat 5g/
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (Sylene -Butyl benzene -Butyl benzene orobenzene	35162 35162 35162 35162 35163 35163 35163	050823 050823 050823 101923 101923 101923	0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000	NA NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA	NA NA	1999.6 1999.6	22.9 22.9 22.9	108-38-3 98-06-6	100 ppm (435mg/m3/8H) N/A N/A	ori-rat 5g/k N/A ori-rat 2240m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (Sylene -Butyl benzene -Butyl benzene orobenzene hlorotoluene	35162 35162 35162 35162 35163 35163 35163 35163	050823 050823 050823 101923 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.8 1999.6 1999.6	22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H)	orl-rat 5g/k N/A orl-rat 2240m orl-rat 2290m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Kyleme -Butyl benzene -Butyl benzene otobenzene hlorotoluene	35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6 1999.6 1999.6 1999.7 1999.5	22.9 1 22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8	100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H)	orl-rat 5gA N/A orl-rat 2240m orl-rat 2290m orl-rat 3900m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Sylene -Butyl benzene -Butyl benzene -Butyl benzene orobenzene hiorotoluene hiorotoluene	35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923	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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	2000 2000 2000 2000 2000 2000 2000	NA NA 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 NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7	22.9 22.9 22.9 22.9 22.9 22.9	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 108-43-4	100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H) N/A	ori-rat 5gA NVA ori-rat 2240m ori-rat 2290m ori-rat 2100m
,4-Trichlorobenzene ,4-Trinethylbenzene ,5-Trimethylbenzene // Strimethylbenzene	35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3	2000 2000 2000 2000 2000 2000 2000	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	NA NA NA NA NA NA	NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.7 1999.7	22.9 22.9 22.9 22.9 1 22.9 22.9 1 22.9	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3/8H) (CL)	orl-rat 5gA NVA orl-rat 2240m orl-rat 2290m orl-rat 2100m orl-rat 500mg
-Dichlorobenzene -Dichlorobenzene	35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 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 NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 2 22.9 1 22.9 2 22.9 5	108-38-3 98-06-8 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1	100 ppm (455mg/m3/8H) N/A N/A N/A 75 ppm (550mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A	ori-rat 5g/k N/A ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 500mg ori-rat 500mg
,4-Trichlorobenzene ,4-Trinethylbenzene ,5-Trimethylbenzene E,5-Trimethylbenzene Xylene -Butyl benzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.6 40001.7 40001.8	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 NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 1 22.9 2 22.9 1 22.9 2 23.0 5 22.8 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1 106-48-7	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A 75 ppm (450mg/m3/8H)	ori-rat 5g/k N/A ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 2100m ori-rat 500mg ipr-mus 1062m ori-rat 500mg
2,4-Trichlorobenzene (,4-Trimethylbenzene (,4-Trimethylbenzene (,5-Trimethylbenzene Edutyl benzene -Butyl benzene -Butyl benzene -Butyl benzene -Botolouene -Bikorotoluene -Bikorotoluene -Dichlorobenzene -Dichlorobenzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163	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	40096.7 40005.8 40001.2 40002.4 40003.8 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 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 NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.6 1999.6 1999.6	22.9 1 22.9 2 22.9 1 22.9 2 22.9 2 22.9 2 22.9 2 22.9 2 22.9 1 22.9 2	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 96-50-1 141-73-1 106-46-7 98-62-8	100 ppm (455mg/m3/8H) NVA NVA 75 ppm (350mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (300mg/m3) (CL) NVA 76 ppm (450mg/m3/8H) 80 ppm (2450mg/m3/8H)	ori-rat 2240mg ori-rat 2290mg ori-rat 3900mg ori-rat 2100mg ori-rat 500mg ori-rat 500mg ori-rat 500mg ori-rat 1400mg
2,4-Trichlorobenzene 4,4-Trinethylbenzene 5,5-Trimethylbenzene Euryl benzene -Butyl benzene -Butyl benzene -Butyl benzene -biorobenzene -biorobluene -bichlorobenzene -bichlorobenzene -bichlorobenzene -pichlorobenzene -popylbenzene ropylbenzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.6 40001.7 40001.8	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 NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 1 22.9 22.9 1 22.9 22.9 1 22.9 23.0 5 22.8 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1 106-48-7	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (350mg/m3/8H) N/A 75 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H)	ori-rat 5g/le NVA ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 2100m ori-rat 500mg ori-rat 500mg ori-rat 500mg

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

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

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

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

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

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

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

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

Comments

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



Penk #	Name	(min.)
1	Sther	9.97
2	1.1.2-Trichtoro-1,2,2-trifluoroetherm	10.33
3	1,1-Dichloroethene	11.10
4	Acetonitrile	12,00
5	Indomethane	12.31
6	Allyl chloride	12.55
9	Carbon disulide/Nathylene chloride	13,04
	trans-1,2-Dichlomethens	14.07
9	1.1-Dichloroethane	15.74
10	2,2-Dictrierograpane	17.70
3.3.	cis-1,2-Dichieroethene	19.60
52	Hethacrylonitrite/Methyl ecrylete/Chloroform	10.45
13	Isobutanol/1,1,1-Trichloroethane	19.91
14	1,1-Dichtoropropené	20.46
15	Carbon tetrachloride	20.79
16	@enzene/1,2-Dicniproethane	21.49
17	Trichloroethene	21.58
10	1,2-Dichloropropene	24.28
19	Methyl methocrylate	24,52
20	Bromodichloromethank	25.13
21	Dibromomethane/2-Mitropropiese	25.46
22	els-1,3-Dichloropropens	27.02
23	Torusine	26.05
24	Ethyl methacryfets/trans-1,3-Dichloropropens	28.73
25	L,1,2-Trichloroet/sns	29.34
26	figtrachloroethene/1,3-Dichloropropane	20.24
27	Dibramochiaromettune	31,16
28	1,2-Dilecompethene	32.84
28	Chlorobenzenik	33.26
30	Ethyphensene/1,1,1,2-fetractionoethave	23.40
31	m-Xytene/p-Xytene	33.86
32	a-Hylene	35.22
33	Styrene	35.30
34	Escarepyi benzane/Bremefank	36,48
35	crs-1,4-Dichlord-2-buttens	36.00
26	1,1,2,2-Tetrachieroethiene	37.23
37	1,2,3-Yrichipropane	37.77
211	п-Ризрубранавия	37.92
39	trans-1,n-Dichloro-3-busens	38.05
40	Beamabanzen4	38.14
-61	1,3,5-Trymethy/benzers	30.62
42	2-Chieroselvenik	38,77
43	4-Chlorotolueria	39.76
44	tert-Busylbenzene	39,91
45	1,2,4-Trimethylbenzene	40.17
46	Pertactionsettions	40.57
47	sec-Butyldenzena	41.02
48	p-Isoprocykolukne	41.42
49	1,3-Dichigrationation	45.83
50	1,4-Dictiorobenzene	42.52
52	n-Butylbenzene 1.2-Dichlorobenzene	43.38
52	1,2-Dibramo-3-chloropropane	46.12
54	Nitrobenzane	46.48
55	1,2,4-Trichtorobenzaris	49,26
56	Herachiprobutadina	49.72
52	Naphthatene	\$0.26
50	1_2_3-Trichlarobenzene	51.16
54	while a record of the annual control	

PO Box 5585 Hamden, CT 06518-0585

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC.

Emergency Telephone USA & CANADA

1-800-535-5053

Address

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

1-352-323-3500 January 1, 2023

Section II - Hazards Identification

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

H225 H370 **Highly Flammable Liquid and Vapor**

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

P271

Cause damage to organs Use in ventilated area

H351 P280

Suspected of causing cancer

P302.332

If on skin, wash with soap and water

P305,351,338

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





Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

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

If swallowed

If inhaled

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media

Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

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

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

Storage Conditions

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

Methanol-SDS.xls

Page 1 of 2

Printed: 2/19/24

Absolute Standards Inc.

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

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

Solubility in Water

COMPLETE

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

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

Materials to avoid Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm

LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed.

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

LC50

15,400 mg/l - 96 h

EC50

24,500.00 mg/l - 48 h

EC100

10,000.00 mg/l - 24 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

IATA

Proper shipping name:

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: 11

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

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

69 components

Expiration Date: 021627 nended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 6UTB

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

100.0 0.021 15-11-11

5E-05 Balance Uncertainty

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

Weight(s) shown below were combine	ed and dilute	ad to (mL):	100.	0 0.02	1 Flask Uncertain	etw									T SON E. I FORMER	
Compound	(RMII) Part Numbe	Lat	De.	fritte	l Irillial	Nominal Conc (µg/mL)	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information ent Safety info. On Atta	ched pg.)
The state of the s	P det Petrope	R THATTAPET	Pilitato	e voi. (m	c) Conc.(ug/ms.)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mt.)	Weight(g)	Weight(g)	Canc (µg/mL) (+/-) (µg/mL) CAS#	OSHA PEL (TWA)	L050
Acetonitrile	(0324)	021644	NA	NA	NA.	2000	99.99	0.2	NA	0.20007	0.00000	2004.0				
Allyl chloride (3-Chloropropene)	(0325)	102396	NA		NA.	2000	99	0.2	NA	0.20207	0.20020	2001.3	8.1	75-05-8	40 ppm (70mg/m3/6H)	orl-rat 2460
Carbon disulphide	(0060)	MKCR8581			NA	2000	99,99	0.2	NA	0.20207	0.20221	2001.4	8.2	107-05-1	1 ppm (3mg/m3/8H)	cri-rat 700r
cis-1,4-Dichloro-2-butene	(1198)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058			8.1	75-15-0	4 ppm (12mg/m3) (skin)	ori-rat 1200
trans-1,4-Dichloro-2-butene	(0486)	MKBP8041\		NA	NA	2000	96.5	0.2	NA.	0.20731	0.21069	2001.1	8,5	1478-11-5		N/A
Diethyl ether		1K18CAS000		NA	NA	2000	99.9	0.2	NA.	0.20025		2001.7	8.4	110-57-6	N/A	NA
Ethyl methacrylate	(0381)	06126PX	NA	NA	NA	2000	99	0.2	NA NA		0.20040	2001.5	8.1	80-29-7	NA	N/A
lodomethane	(0489)	SH8F8718V		NA	NA.	2000	99.5	0.2	NA NA	0.20207	0.20230	2002.3	8.2	97-63-2	N/A	orf-ret 14800
2-Methyl-1-propanol	(0445)	15241EB	NA	NA	NA.	2000				0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mg/m3/8H)(sidn)	
Methacrylonitrile	(0442)	00427ET	NA	NA.	NA.	2000	99.5	0.2	NA	0.20106	0.20120	2001.4	8.1	78-83-1	60 ppm (150mg/m3/8H)	orl-rat 2480r
Methyl acrylate	(1075)	SHBI00679		NA			99	0.2	NA	0.20207	0.20221	2001.4	8.2	126-98-7	1 ppm (3mg/m3/8H)(skin)	orl-rat 120v
Methyl methacrylate		MKBW5137\			NA NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	ori-ret 277m
Nitrobenzene	(0228)			NA	NA NA	2000	99.9	0.2	NA NA	0.20025	0.20041	2001.6	8.1	80-62-6	100 ppm (410mg/m3/8H)	ori-rat 7872
2-Nitropropane	(0461)	01213TV	NA	NA.	NA NA	2000	99	0.2	NA NA	0.20207	0.20220	2001.3	8.2	96-95-3	1 ppm (5mg/m3/8H)(skin)	orl-rat 780m
Pentactiloroethane		14002JX	NA	NA	NA NA	2000	97.3	9.0	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35mg/m3/8H)	orl-red 720m
1,1,2-Trichlorotrisuoroethane	(0450)	HGA01	NA	NA	NA	2000	98	0,2	NA NA	0.20413	0.20430	2001.6	8.3	76-01-7	NVA	N/A
Bromodichioromethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA.	0.20207	0.20225	2001.8	8,2	76-13-1	1000 ppm (7600mg/m3/8H)	orl-rat 43g
	35171	101623	0.05	5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	ori-ret 916m
Dibromochioromethane	35171	101823	0.05	6.00	40002.1	2000	NA	NA	0.017	NA	NA	1999.6	23.0	124-48-1	NA	orl-rat 640m
Sis-1,2-Dichloroethene	35171	101823	0.05	5.00	40003,1	2000	NA	NA	0.017	NA	NA	1999.7	22.9	158-59-2	NA	N/A
rans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA.	NA	0.017	NA	NA	1999.8	23.0	156-60-5	N/A	ort-rail 1235r
Methylene chloride	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA	1999.6	22,9	75-09-2	500 ppm	ori-rat 820m
,1-Dichloroethene	32251	102023	0.10	10,00	20001.6	2000	NA	NA	0.042	NA	NA	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat soun
Promeform	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (sldn)	ori-rat 200n
arbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	56-23-5	The state of the s	
hioroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA.	2001.9	20.5	67-68-3	2 ppm (12.6mg/m3/8H)	ori-rat 2350
Dibromomethana	95321	020724	0.10	10.00	20002.9	2000	NA	NA.	0.042	NA	NA NA	1999.8	20.5		50 ppm (240mg/m3) (CL)	orf-ret 908m
,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA.	NA.	1999.8		74-95-3	N/A	orl-ret 106m
,2-Dichloropropane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA NA		20.5	75-34-3	100 ppm	orl-rat 725m
elvachloroethene	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA.		1999.8	20.4	594-20-7	N/A	NA
,1,1-Trichloroethane	95321	020724	0.10	10.00	20003.0	2000	NA	NA			NA	2019.6	20.6	127-18-4	26 ppm (170mg/m3/8H)(final)	
2-Dibromo-3-chloropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.042	NA	NA .	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/8H)	orl-rat 10300
2-Dibromoethane	35161	112322	0.05	5.00	40024.8	2000			0.017	NA	NA	2000.3	22.9	96-12-8	0.001 ppm	ori-nat 170m
2-Dichlorgethane	35161	112322	0.08	5.00	40018.0	2000	NA	NA	0.017	NA	NA	2000.7	22.9	106-93-4	20 ppm (8H)	orf-rat 108m
2-Dichloropropene	35161	112322	0.05	5.00			NA	NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670m
3-Dichloropropane	35161	112322	0.05		40051.0	2000	NA	NA	0.017	NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8H)	ori-rat 1947m
1-Dichloropropene	35161	112322	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600
8-1,3-Dichioropropena	35161	112322	0.05	5.00	40012.1	2000	NA	NA	0.017	NA	NA	2000.1	29.7	563-56-6	NA	NA
ans-1,3-Dichloropropene	35161				40010.0	2000	NA	NA	0.017	NA	NA	2000.0	23.0	10061-01-5	N/A	N/A
exachloro-1,3-butadiene		112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4	23.0 1	10061-02-8	N/A	N/A
	35181	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/m3/8H)	ori-rat 62mg
1,1,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1	22.9	630-20-6	N/A	orl-rad 670m
1.2.2-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)(aldri)	orl-rat 800m
1,2-Trichloroethane	35161	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	ori-rat 836m
ichloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/9H)	orl-mus 2402r
2,3-Trichloropropane	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4	10 ppm (80mg/m3/8H)	ori-rat 149.6r
nzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894n
omobenzene	36162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8		108-86-1	N/A	orl-rat 2699m
Butyl benzene	35162	060823	0.05	5.00	40003.B	2000	NA	NA	0.017	NA	NA	1999.7		104-51-8	N/A	
hyl benzene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		100-41-4	190 ppm (435mg/m3/8H)	N/A
sopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	99-87-6		orl-rat>2000r
phihalene	35162	050823	0.05	5.00	40006.2		NA	NA	0.017	NA	NA.	1999.8	22.9		N/A	orl-rat 4750m
rrene	35162	050823	0.05	5.00	40004.8		NA	NA	0.017	NA	NA NA	1999.7		91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490m
uene	35162	050823	0.05	5.00	40006.2		NA	NA	0.017	NA	NA.			100-42-5	100 ppm	orl-rat 5000m
	35162	050823	0.05	5.00	40003.1		NA	NA	0.017			1999.8		108-88-3	200 ppm	orl-ret 5000m
3-Trichlorobenzene		050823	0.05	5.00	40006.8		NA	NA NA	0.017	NA NA	NA NA	1999.7		87-61-6	N/A	lor-mus 1390r
			Jan Will	5.00	40001.6		NA NA	NA NA		NA	NA	1999.8		120-82-1	5 ppm (CL) (40mg/m3)	ori-rat 750m
,4-Trichlorobenzene	35162		0.05			5000			0.017	NA NA	NA NA	1999.6		95-63-6	N/A	ort-rat 5g/
,4-Trichlorobenzene ,4-Trimethylbenzene	35162 35162	050823	0.05			2000										
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene	35162 35162 35162	050823 050823	0.05	5.00	40006.7		NA	NA	0.017			1999.6		108-67-8	N/A	OR-198 5000m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (ylene	35162 35162 35162 35162	050823 050823 050823	0.05 0.05	5.00	40006.7 40005.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-38-3	N/A 100 ppm (435mg/m3/8H)	
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Kylene -Butyl benzene	35162 35162 35162 35162 35163	050823 050823 050823 101923	0.05 0.05 0.05	5.00 5.00 5.00	40006.7 40005.8 40001.2	2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	22.9 22.9	108-38-3 98-06-6		
A-Trichlorobenzene 4-Trimethylbenzene 5-Trimethylbenzene (ylene -Butyl benzene -Butyl benzene	35162 35162 35162 35162 35163 35163	050823 050823 050823 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40008.7 40005.8 40001.2 40002.4	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.8	22.9 22.9	108-38-3	100 ppm (435mg/m3/8H)	orl-rat 5g/
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (Sylene -Butyl benzene -Butyl benzene orobenzene	35162 35162 35162 35162 35163 35163 35163	050823 050823 050823 101923 101923 101923	0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000	NA NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA	NA NA	1999.6 1999.6	22.9 22.9 22.9	108-38-3 98-06-6	100 ppm (435mg/m3/8H) N/A N/A	ori-rat 5g/k N/A ori-rat 2240m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (Sylene -Butyl benzene -Butyl benzene orobenzene hlorotoluene	35162 35162 35162 35162 35163 35163 35163 35163	050823 050823 050823 101923 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.8 1999.6 1999.6	22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H)	orl-rat 5g/k N/A orl-rat 2240m orl-rat 2290m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Kyleme -Butyl benzene -Butyl benzene otobenzene hlorotoluene	35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6 1999.6 1999.6 1999.7 1999.5	22.9 1 22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8	100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H)	orl-rat 5gA N/A orl-rat 2240m orl-rat 2290m orl-rat 3900m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Sylene -Butyl benzene -Butyl benzene -Butyl benzene orobenzene hiorotoluene hiorotoluene	35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923	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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	2000 2000 2000 2000 2000 2000 2000	NA NA 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 NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7	22.9 22.9 22.9 22.9 22.9 22.9	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 108-43-4	100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H) N/A	ori-rat 5gA NVA ori-rat 2240m ori-rat 2290m ori-rat 2100m
,4-Trichlorobenzene ,4-Trinethylbenzene ,5-Trimethylbenzene // Strimethylbenzene	35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3	2000 2000 2000 2000 2000 2000 2000	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	NA NA NA NA NA NA	NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.7 1999.7	22.9 22.9 22.9 22.9 1 22.9 22.9 1 22.9	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3/8H) (CL)	orl-rat 5gA NVA orl-rat 2240m orl-rat 2290m orl-rat 2100m orl-rat 500mg
-Dichlorobenzene -Dichlorobenzene	35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 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 NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 2 22.9 1 22.9 2 22.9 5	108-38-3 98-06-8 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1	100 ppm (455mg/m3/8H) N/A N/A N/A 75 ppm (550mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A	ori-rat 5g/k N/A ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 500mg ori-rat 500mg
,4-Trichlorobenzene ,4-Trinethylbenzene ,5-Trimethylbenzene E,5-Trimethylbenzene Xylene -Butyl benzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.6 40001.7 40001.8	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 NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 1 22.9 2 22.9 1 22.9 2 23.0 5 22.8 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1 106-48-7	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A 75 ppm (450mg/m3/8H)	ori-rat 5g/k N/A ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 2100m ori-rat 500mg ipr-mus 1062m ori-rat 500mg
2,4-Trichlorobenzene (,4-Trimethylbenzene (,4-Trimethylbenzene (,5-Trimethylbenzene Edutyl benzene -Butyl benzene -Butyl benzene -Butyl benzene -Botolouene -Bikorotoluene -Bikorotoluene -Dichlorobenzene -Dichlorobenzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 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	40096.7 40005.8 40001.2 40002.4 40003.8 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 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 NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.6 1999.6 1999.6	22.9 1 22.9 2 22.9 1 22.9 2 22.9 2 22.9 2 22.9 2 22.9 2 22.9 1 22.9 2	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 96-50-1 141-73-1 106-46-7 98-62-8	100 ppm (455mg/m3/8H) NVA NVA 75 ppm (350mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (300mg/m3) (CL) NVA 76 ppm (450mg/m3/8H) 80 ppm (2450mg/m3/8H)	ori-rat 2240mg ori-rat 2290mg ori-rat 3900mg ori-rat 2100mg ori-rat 500mg ori-rat 500mg ori-rat 500mg ori-rat 1400mg
2,4-Trichlorobenzene 4,4-Trinethylbenzene 5,5-Trimethylbenzene Euryl benzene -Butyl benzene -Butyl benzene -Butyl benzene -biorobenzene -biorobluene -bichlorobenzene -bichlorobenzene -bichlorobenzene -pichlorobenzene -popylbenzene ropylbenzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 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	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.6 40001.7 40001.8	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 NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 1 22.9 22.9 1 22.9 22.9 1 22.9 23.0 5 22.8 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1 106-48-7	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (350mg/m3/8H) N/A 75 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H) 80 ppm (450mg/m3/8H) N/A N/A	ori-rat 5g/le NVA ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 2100m ori-rat 500mg ori-rat 500mg ori-rat 500mg

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

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

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

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

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

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

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

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

Comments

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



Penk #	Name	(min.)
1	Sther	9.97
2	1.1.2-Trichtoro-1,2,2-trifluoroetherm	10.33
3	1,1-Dichloroethene	11.10
4	Acetonitrile	12,00
5	Indomethane	12.31
6	Allyl chloride	12.55
9	Carbon disulide/Nathylene chloride	13,04
	trans-1,2-Dichlomethens	14.07
9	1.1-Dichloroethane	15.74
10	2,2-Dictrierograpane	17.70
3.3.	cis-1,2-Dichieroethene	19.60
52	Hethacrylonitrite/Methyl ecrylete/Chloroform	10.45
13	Isobutanol/1,1,1-Trichloroethane	19.91
14	1,1-Dichtoropropené	20.46
15	Carbon tetrachloride	20.79
16	@enzene/1,2-Dicniproethane	21.49
17	Trichloroethene	21.58
10	1,2-Dichloropropene	24.28
19	Methyl methocrylate	24,52
20	Bromodichloromethank	25.13
21	Dibromomethane/2-Mitropropiese	25.46
22	els-1,3-Dichloropropens	27.02
23	Torusine	26.05
24	Ethyl methacryfets/trans-1,3-Dichloropropens	28.73
25	L,1,2-Trichloroet/Ans	29.34
26	figtrachloroethene/1,3-Dichloropropane	20.24
27	Dibramochiaromettune	31,16
28	1,2-Dilecompethene	32.84
28	Chlorobenzenik	33.26
30	Ethyphensene/1,1,1,2-fetractionoethave	23.40
31	m-Xytene/p-Xytene	33.86
32	a-Hylene	35.22
33	Styrene	35.30
34	Escarepyi benzane/Bremeforst	36,48
35	crs-1,4-Dichlord-2-buttens	36.00
26	1,1,2,2-Tetrachieroethiene	37.23
37	1,2,3-Yrichipropane	37.77
211	п-Ризрубранавия	37.92
39	trans-1,n-Dichloro-3-busens	38.05
40	Beamabanzen4	38.14
-61	1,3,5-Trymethy/benzers	30.62
42	2-Chieroselvenik	38,77
43	4-Chlorotolueria	39.76
44	tert-Busylbenzene	39,91
45	1,2,4-Trimethylbenzene	40.17
46	Pertactionsettions	40.57
47	sec-Butyldenzena	41.02
48	p-Isoprocykolukne	41.42
49	1,3-Dichigrationation	45.83
50	1,4-Dictiorobenzene	42.52
52	n-Butylbenzene 1.2-Dichlorobenzene	43.38
52	1,2-Dibramo-3-chloropropane	46.12
54	Nitrobenzane	46.48
55	1,2,4-Trichtorobenzaris	49,26
56	Herachiprobutadina	49.72
52	Naphthatene	\$0.26
50	1_2_3-Trichlarobenzene	\$1.16
54	while a record of the annual control	

PO Box 5585 Hamden, CT 06518-0585

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC.

Emergency Telephone USA & CANADA

1-800-535-5053

Address

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

1-352-323-3500 January 1, 2023

Section II - Hazards Identification

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

H225 H370 **Highly Flammable Liquid and Vapor**

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

P271

Cause damage to organs Use in ventilated area

H351 P280

Suspected of causing cancer

P302.332

If on skin, wash with soap and water

P305,351,338

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





Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

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

If swallowed

If inhaled

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media

Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

Methanol-SDS.xls

Page 1 of 2

Printed: 2/19/24

Absolute Standards Inc.

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

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

Solubility in Water

COMPLETE

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

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

Materials to avoid Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm

LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed.

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

LC50

15,400 mg/l - 96 h

EC50

24,500.00 mg/l - 48 h

EC100

10,000.00 mg/l - 24 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

IATA

Proper shipping name:

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: 11

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

Certified Reference Material CRM



Absolute Standards, Inc.

www.absolutestandards.com

800-368-1131



Part Number: CERTIFIED WEIGHT REPORT

Lots

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

0.012 Flack Uncertainty

100.0

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

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

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

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

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

orl-rat 6408mg/kg

¥

488-23-3

8.7

2001.3

0.21520

0.21506

0.2

8

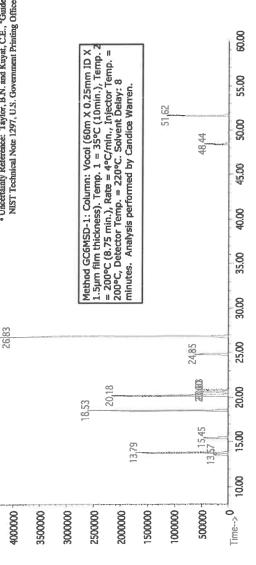
2000

AP01

491

11. 1,2,3,4-Tetramethylbenzene

9



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

200 ppm

OSHA PEL

66 <

(lenoitqo) %

Absolute Standards Inc.

GHS/OSHA Compliant

Safety Data Sheet (SDS)

ABSOLUTE STANDARDS INC

Section I Product and Company Identification

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

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

Emergency Telephone USA & CANADA

Section II - Hazards Identification

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

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

Section III - Composition

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

Signal Word: DANGER

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

Section IV. FIRST AID MEASURES

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

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

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

Section V. FIREFIGHTING MEASURES

Protective equipment for fire

bewollswe if

General advice

lf inhaled

Address

Manufacturer's Name

In case of eye contact In case of skin contact

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

Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

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

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

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

Section VII. HANDLING AND STORAGE

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

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

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mqq 00S AWT 1-88-78 Methanol

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

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

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

Section IX - Physical/Chemical Characteristics

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

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

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

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

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

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Appearance and Odor

Toxic if swallowed.

(SU) TOG

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

4 96 - Ngm 004,81 TC20

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

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

Section XV. REGULATORY INFORMATION

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: II

Methanol

Section XVI. Misc. INFORMATION

Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance. handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute MERCHANAPBITITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially it improperly STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS usage, protective ciolibing including eye and face guards and respirators must be used to avoid contact with material or breathing including eye and face guards and respirators. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC warrants that the chemical meets the specifications set forth on the label. ABSOLUTE GRADARDS INC warrants that the chemical meets the specifications set forth on the label. ABSOLUTE subservised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 910). 200 and Clobal Harmoniked System (GHS). This document is intended only as a guide to the appropriate presautionary handling of the material by frained personnel, or

Certified Reference Material CRM



Absolute Standards, Inc.

www.absolutestandards.com

800-368-1131



Part Number: CERTIFIED WEIGHT REPORT

Lots

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

0.012 Flack Uncertainty

100.0

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

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

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

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

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

orl-rat 6408mg/kg

¥

488-23-3

8.7

2001.3

0.21520

0.21506

0.2

8

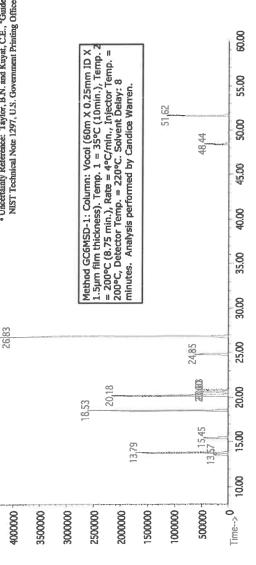
2000

AP01

491

11. 1,2,3,4-Tetramethylbenzene

9



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

200 ppm

OSHA PEL

66 <

(lenoitqo) %

Absolute Standards Inc.

GHS/OSHA Compliant

Safety Data Sheet (SDS)

ABSOLUTE STANDARDS INC

Section I Product and Company Identification

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

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

Emergency Telephone USA & CANADA

Section II - Hazards Identification

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

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

Section III - Composition

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

Signal Word: DANGER

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

Section IV. FIRST AID MEASURES

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

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

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

Section V. FIREFIGHTING MEASURES

Protective equipment for fire

bewollswe if

General advice

lf inhaled

Address

Manufacturer's Name

In case of eye contact In case of skin contact

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

Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

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

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

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

Section VII. HANDLING AND STORAGE

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

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

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mqq 00S AWT 1-88-78 Methanol

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

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

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

Section IX - Physical/Chemical Characteristics

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

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

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

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

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

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Appearance and Odor

Toxic if swallowed.

(SU) TOG

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

4 96 - Ngm 004,81 TC20

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

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

Section XV. REGULATORY INFORMATION

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: II

Methanol

Section XVI. Misc. INFORMATION

Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance. handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute MERCHANAPBITITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially it improperly STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS usage, protective ciolibing including eye and face guards and respirators must be used to avoid contact with material or breathing including eye and face guards and respirators. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC warrants that the chemical meets the specifications set forth on the label. ABSOLUTE GRADARDS INC warrants that the chemical meets the specifications set forth on the label. ABSOLUTE subservised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 910). 200 and Clobal Harmoniked System (GHS). This document is intended only as a guide to the appropriate presautionary handling of the material by frained personnel, or

www.absolutestandards.com

Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

ファフ

DATE 102924 102924 DATE orl-rat 46mg/kg (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) Pedro L. Rentas Justin Dippold 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By: (+/-) (ng/ml_) Uncertainty Expanded 52.5 Conc (ug/mL) 5008.9 Actual 072324Q Weight(g) 0.05175 Lot# Solvent(s): Weight(g) 0.05166 Target 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Uncertainty Purity 0.5 Purity 8 97 Conc (µg/mL) Nominal 10.0 5000 Refrigerate (4 °C) 103755V10F Weight(s) shown below were combined and diluted to (mL): Number Acrolein 102924 112924 ĕ **6UTB** RM# S Description: Nominal Concentration (µg/mL): Expiration Date: Recommended Storage: Part Number: Lot Number: NIST Test ID#: Compound 1. Acrolein

Method: GCGMSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vocol (60m X 0.25mm ID X 1.5 mm 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

Scan 232 (8.927 min): [BSB2]79005.D		99				37	20 30 40 50 65 75 85 119 158 169 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170
Abundance	00009	20000	40000	30000	20000	10000	m/z>0 20
TIC: [BSB2]79005.D	8.93						10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00
Abundance	250000	200000	150000		100000	20000	Time>0

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

Lot # 102924

Printed: 10/30/2024, 4:42:12 PM

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).

www.absolutestandards.com

Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

ファフ

DATE 102924 102924 DATE orl-rat 46mg/kg (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) Pedro L. Rentas Justin Dippold 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By: (+/-) (ng/ml_) Uncertainty Expanded 52.5 Conc (ug/mL) 5008.9 Actual 072324Q Weight(g) 0.05175 Lot# Solvent(s): Weight(g) 0.05166 Target 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Uncertainty Purity 0.5 Purity 8 97 Conc (µg/mL) Nominal 10.0 5000 Refrigerate (4 °C) 103755V10F Weight(s) shown below were combined and diluted to (mL): Number Acrolein 102924 112924 ĕ **6UTB** RM# S Description: Nominal Concentration (µg/mL): Expiration Date: Recommended Storage: Part Number: Lot Number: NIST Test ID#: Compound 1. Acrolein

Method: GCGMSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vocol (60m X 0.25mm ID X 1.5 mm 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

Scan 232 (8.927 min): [BSB2]79005.D		99				37	20 30 40 50 65 75 85 119 158 169 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170
Abundance	00009	20000	40000	30000	20000	10000	m/z>0 20
TIC: [BSB2]79005.D	8.93						10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00
Abundance	250000	200000	150000		100000	20000	Time>0

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

Lot # 102924

Printed: 10/30/2024, 4:42:12 PM

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

Certified Reference Material CRIM SVICH

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





103024 DATE DATE orl-rat 46mg/kg 103024 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) The Pedro L. Rentas Lawrence Barry 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By: Uncertainty Conc (ug/mL) (+/-) (ug/mL) Expanded 51.9 5007.0 072324Q Weight(g) 0.10322 Lot# Solvent(s): Weight(g) 0.10307 Target 5E-05 Balance Uncertainty Flask Uncertainty Uncertainty Purity 0.5 0.002 Purity 8 97 Conc (ug/mL) Nominal 20.0 5000 Refrigerate (4 °C) 103755R02H Weight(s) shown below were combined and diluted to (mL): Number 103024 Acrolein 113024 ಶ **6UTB** 5000 RM# 'n Description: Recommended Storage: Nominal Concentration (µg/mL): Part Number: Lot Number: Expiration Date: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound

90 100 110 120 130 140 150 160 170 158 169 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=20°C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. Scan 232 (8.927 min): [BSB2]79005.D 8 8 75 92 8 56 50 4 8 37 8 27 20 0<--Z/Ш 50000 40000 30000 20002 10000 00009 Abundance 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.01 TIC: [BSB2]79005.D 8.93 1. Acrolein 250000 200000 100000 50000 Abundance 50000

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

January 1, 2024

1-352-323-3500

1-800-535-5053

46 <

(lenoitqo) %

If in eyes, remove contacts, rinse with water

Safety Data Sheet (SDS)

Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **IDENTITY**

Emergency Telephone International 44 Rossotto Dr. Address Emergency Telephone USA & CANADA ABSOLUTE STANDARDS INC Manufacturer's Name

Hamden CT, 06514

Section II - Hazards Identification

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

Use gloves, eye protection/face sheild P280 If on skin, wash with soap and water Causes skin and eye irritation. Use in ventilated area H312

Signal Word: DANGER

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Date Prepared/Revised

GHS/OSHA Compliant

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

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

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

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

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

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

di neələ

Environmental precautions

If swallowed

baladni 11 General advice

P302,332

In case of eye contact

in case of skin contact

Section VII. HANDLING AND STORAGE

VVater

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mdq 008 :AWT 9-81-25/7:#SAO

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

VI HOHAR
Boiling Poin
ļ

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Melting Point		Vapor Pressure (mm Hg)
L.		J.001	

				AN AN	EC20 FC20
			ИОІТАМЯОЗІ	OCOGICAL IN	Section XII. Ed
					Eye imitation
			1.01		LD50 Dermal - Gu Causes skin irritat
			AN AN		LC50 Inhalation -
			AN	+- 0	LD50 Oral - Rat
			NOITAMRO3NI_	XICOLOGICAL	Section XI. TO
			- No data available	bosition broducts	Hazardous decom
			AN aldeliana stat alt		Materials to avoid
			AN	р	Conditions to avoi
			AN		Possibility of haza
	conditions.	eparota bebne	Stable under recomme		Chemical stability
			YTIVITA	Я ОИА УТІЛІВ	Section X. STA
	SLIGHT CHEMICAL ODOR.	HTIW QIUD	COLORLESS LI	odor d	Appearance an
			Sompletely miscible	ter (Solubility in Wa
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		(r = AIA	Vapor Density (
O ₀ 0		AN			

Section XIII. DISPOSAL CONSIDERATIONS

Section XIV. TRANSPORT INFORMATION

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods (SU) TOA

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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. BEAD ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 DISCLAMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR AND STANDARD STANDAR 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. trained in chemical the material by trained personnel, or supervised by a person trained in chemical the user is responsible for determining the presuntions and dangers of this otherical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirator must be used to avoid contact with material or breathing chemical appoisure. Exposure to this product may have serious adverse health effects. This determinant the product may have serious adverse health effects. This determinant was a production of use or interaction with material chemical appointment.

Proper shipping name: Water

Not dangerous goods

ATAI

Certified Reference Material CRIM SVICH

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





103024 DATE DATE orl-rat 46mg/kg 103024 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) The Pedro L. Rentas Lawrence Barry 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By: Uncertainty Conc (ug/mL) (+/-) (ug/mL) Expanded 51.9 5007.0 072324Q Weight(g) 0.10322 Lot# Solvent(s): Weight(g) 0.10307 Target 5E-05 Balance Uncertainty Flask Uncertainty Uncertainty Purity 0.5 0.002 Purity 8 97 Conc (ug/mL) Nominal 20.0 5000 Refrigerate (4 °C) 103755R02H Weight(s) shown below were combined and diluted to (mL): Number 103024 Acrolein 113024 ಶ **6UTB** 5000 RM# 'n Description: Recommended Storage: Nominal Concentration (µg/mL): Part Number: Lot Number: Expiration Date: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound

90 100 110 120 130 140 150 160 170 158 169 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=20°C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. Scan 232 (8.927 min): [BSB2]79005.D 8 8 75 92 8 56 50 4 8 37 8 27 20 0<--Z/Ш 50000 40000 30000 20002 10000 00009 Abundance 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.01 TIC: [BSB2]79005.D 8.93 1. Acrolein 250000 200000 100000 50000 Abundance 50000

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

January 1, 2024

1-352-323-3500

1-800-535-5053

46 <

(lenoitqo) %

If in eyes, remove contacts, rinse with water

Safety Data Sheet (SDS)

Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **IDENTITY**

Emergency Telephone International 44 Rossotto Dr. Address Emergency Telephone USA & CANADA ABSOLUTE STANDARDS INC Manufacturer's Name

Hamden CT, 06514

Section II - Hazards Identification

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

Use gloves, eye protection/face sheild P280 If on skin, wash with soap and water Causes skin and eye irritation. Use in ventilated area H312

Signal Word: DANGER

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Date Prepared/Revised

GHS/OSHA Compliant

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

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

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

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

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

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

di neələ

Environmental precautions

If swallowed

baladni 11 General advice

P302,332

In case of eye contact

in case of skin contact

Section VII. HANDLING AND STORAGE

VVater

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mdq 008 :AWT 9-81-25/7:#SAO

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

VI HOHAR
Boiling Poin
ļ

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Melting Point		Vapor Pressure (mm Hg)
L.		J.001	

				AN AN	EC20 FC20
			ИОІТАМЯОЗІ	OCOGICAL IN	Section XII. Ed
					Eye imitation
			1.01		LD50 Dermal - Gu Causes skin irritat
			AN AN		LC50 Inhalation -
			AN	+- 0	LD50 Oral - Rat
			NOITAMRO3NI_	XICOLOGICAL	Section XI. TO
			- No data available	bosition broducts	Hazardous decom
			AN aldeliana stat alt		Materials to avoid
			AN	р	Conditions to avoi
			AN		Possibility of haza
	conditions.	eparota bebne	Stable under recomme		Chemical stability
			YTIVITA	Я ОИА УТІЛІВ	Section X. STA
	SLIGHT CHEMICAL ODOR.	HTIW QIUD	COLORLESS LI	odor d	Appearance an
			Sompletely miscible	ter (Solubility in Wa
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		(r = AIA	Vapor Density (
O ₀ 0		AN			

Section XIII. DISPOSAL CONSIDERATIONS

Section XIV. TRANSPORT INFORMATION

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods (SU) TOA

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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. BEAD ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 DISCLAMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR AND STANDARD STANDAR 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. trained in chemical the material by trained personnel, or supervised by a person trained in chemical the user is responsible for determining the presuntions and dangers of this otherical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirator must be used to avoid contact with material or breathing chemical appoisure. Exposure to this product may have serious adverse health effects. This determinant the product may have serious adverse health effects. This determinant was a production of use or interaction with material chemical appointment.

Proper shipping name: Water

Not dangerous goods

ATAI

Certified Reference Material CRIM SVICH

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





103024 DATE DATE orl-rat 46mg/kg 103024 (Solvent Safety Info. On Attached pg.) SDS Information OSHA PEL (TWA) The Pedro L. Rentas Lawrence Barry 0.1 ppm 107-02-8 CAS# Formulated By: Reviewed By: Uncertainty Conc (ug/mL) (+/-) (ug/mL) Expanded 51.9 5007.0 072324Q Weight(g) 0.10322 Lot# Solvent(s): Weight(g) 0.10307 Target 5E-05 Balance Uncertainty Flask Uncertainty Uncertainty Purity 0.5 0.002 Purity 8 97 Conc (ug/mL) Nominal 20.0 5000 Refrigerate (4 °C) 103755R02H Weight(s) shown below were combined and diluted to (mL): Number 103024 Acrolein 113024 ಶ **6UTB** 5000 RM# 'n Description: Recommended Storage: Nominal Concentration (µg/mL): Part Number: Lot Number: Expiration Date: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound

90 100 110 120 130 140 150 160 170 158 169 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=20°C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. Scan 232 (8.927 min): [BSB2]79005.D 8 8 75 92 8 56 50 4 8 37 8 27 20 0<--Z/Ш 50000 40000 30000 20002 10000 00009 Abundance 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.01 TIC: [BSB2]79005.D 8.93 1. Acrolein 250000 200000 100000 50000 Abundance 50000

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

January 1, 2024

1-352-323-3500

1-800-535-5053

46 <

(lenoitqo) %

If in eyes, remove contacts, rinse with water

Safety Data Sheet (SDS)

Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **IDENTITY**

Emergency Telephone International 44 Rossotto Dr. Address Emergency Telephone USA & CANADA ABSOLUTE STANDARDS INC Manufacturer's Name

Hamden CT, 06514

Section II - Hazards Identification

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

Use gloves, eye protection/face sheild P280 If on skin, wash with soap and water Causes skin and eye irritation. Use in ventilated area H312

Signal Word: DANGER

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Date Prepared/Revised

GHS/OSHA Compliant

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

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

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

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

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

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

di neələ

Environmental precautions

If swallowed

baladni 11 General advice

P302,332

In case of eye contact

in case of skin contact

Section VII. HANDLING AND STORAGE

VVater

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

mdq 008 :AWT 9-81-25/7:#SAO

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

VI HOHAR
Boiling Poin
ļ

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Melting Point		Vapor Pressure (mm Hg)
L.		J.001	

				AN AN	EC20 FC20
			ИОІТАМЯОЗІ	OCOGICAL IN	Section XII. Ed
					Eye imitation
			1.01		LD50 Dermal - Gu Causes skin irritat
			AN AN		LC50 Inhalation -
			AN	+- 0	LD50 Oral - Rat
			NOITAMRO3NI_	XICOLOGICAL	Section XI. TO
			- No data available	bosition broducts	Hazardous decom
			AN aldeliana stat alt		Materials to avoid
			AN	р	Conditions to avoi
			AN		Possibility of haza
	conditions.	eparota bebne	Stable under recomme		Chemical stability
			YTIVITA	Я ОИА УТІЛІВ	Section X. STA
	SLIGHT CHEMICAL ODOR.	HTIW QIUD	COLORLESS LI	odor d	Appearance an
			Sompletely miscible	ter (Solubility in Wa
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		(r = AIA	Vapor Density (
O ₀ 0		AN			

Section XIII. DISPOSAL CONSIDERATIONS

Section XIV. TRANSPORT INFORMATION

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods (SU) TOA

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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. BEAD ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 DISCLAMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR AND STANDARD STANDAR 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. trained in chemical the material by trained personnel, or supervised by a person trained in chemical the user is responsible for determining the presuntions and dangers of this otherical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirator must be used to avoid contact with material or breathing chemical appoisure. Exposure to this product may have serious adverse health effects. This determinant the product may have serious adverse health effects. This determinant was a production of use or interaction with material chemical appointment.

Proper shipping name: Water

Not dangerous goods

ATAI

Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



Certified Reference Material CRM

Solvent(s):

Methanol



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

CERTIFIED WEIGHT REPORT

Part Number: Lot Number:

95318

111722

2-Chloroethyl vinyl ether

Expiration Date:

Description:

111725

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

NIST Test ID#:

6UTB

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

50.0

10000

0.001 Flask Uncertainty

5E-05 Balance Uncertainty

99

0.50551

10001.9

40.5

110-75-8

Lot#

EB679-US

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

N/A

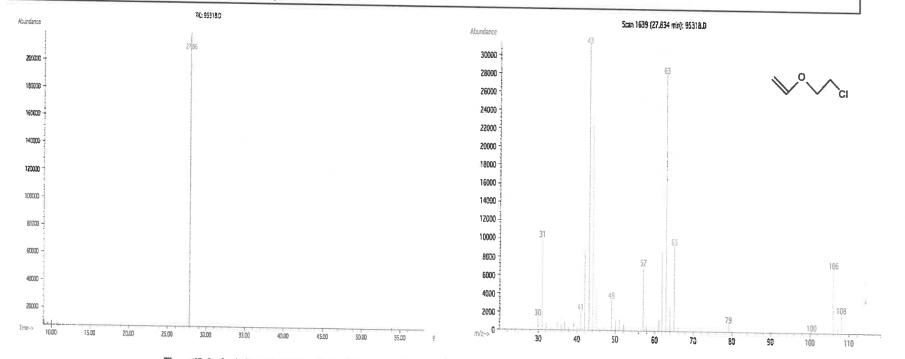
SDS Information Expanded Uncertainty

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

0.50541

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

0.2



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

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

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

800-368-1131 Absolute Standards, Inc.

www.absolutestandards.com

Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

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

Expiration Date: 121324

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

30.0 0.0003 Flask Uncertainty 5E-05 Balance Uncertainty

11

121321

DATE

Solvent(s):

Lot#

Methanol

EA899-US

ormulated By: Benson Chan

Reviewed By: Pedro L. Rentas

121321 DATE

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

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

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

RM#

Lot Number

Nominal

Purity

Uncertainty

Target

Actual

Actual

Topy

100

530

200

25.00

30.00

35.00

40,00

450

50.00

55.00

8

8

8

8

70

8

8

10

79 23

8

2000

2000

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

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

800-368-1131 Absolute Standards, Inc.

www.absolutestandards.com

Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

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

Expiration Date: 121324

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

30.0 0.0003 Flask Uncertainty 5E-05 Balance Uncertainty

11

121321

DATE

Solvent(s):

Lot#

Methanol

EA899-US

ormulated By: Benson Chan

Reviewed By: Pedro L. Rentas

121321 DATE

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

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

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

RM#

Lot Number

Nominal

Purity

Uncertainty

Target

Actual

Actual

Topy

100

530

200

25.00

30.00

35.00

40,00

450

50.00

55.00

8

8

8

8

70

8

8

10

79 23

8

2000

2000

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

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



CERTIFIED REFERENCE MATERIAL



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

Certificate of Analysis





www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.: 30470

Lot No.: A0181905

tert-Butanol Standard

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

Container Size: 2 mL Pkg Amt: > 1 mL

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

Ship: Ambient

CERTIFIED VALUES

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

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

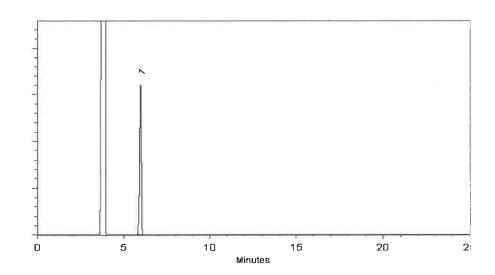
Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:



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

John Friedline - Operations Technician I

Date Mixed:

16-Feb-2022

Balance: B442140311

War lina Tossan Parlina Cowan - Operations Tech I

Date Passed: 21-Feb-2022

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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



CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #322201

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

110 Benner Circle

www.restek.com

Certificate of Analysis





FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

CERTIFIED VALUES

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

Column:

105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

Inj. Temp:

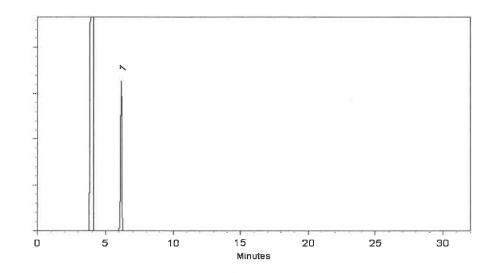
200°C

Det. Temp:

250°C

Det. Type:

FID



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

Alicia Leathers - Operation Technician I

Date Mixed:

15-Nov-2022

Balance: 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

17-Nov-2022

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- 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 1-Bromo-4-fluorobenzene (BFB)		184975	99%	2,483.9 μg/mL	+/- 139.5488

Ship:

Ambient

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

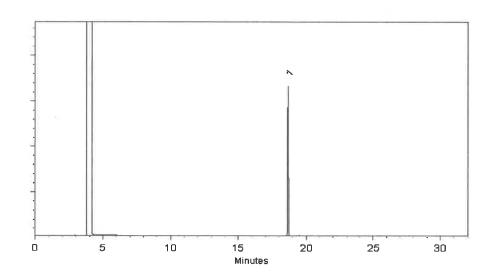
Det. Type:

Split Vent:

40 ml/min

Inj. Vol

 1μ l



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

企大 Alicia Leathers - Operation Technician I

Date Mixed:

17-Nov-2022

Balance Serial #

B251644995

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

21-Nov-2022

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



General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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



8			











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.

Ambient

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

CERTIFIED VALUES

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

Ship:

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

P&T Methanol

CAS# 67-56-1 Purity 99%

Solvent:

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μا



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

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
 the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
 information, with the knowledge/understanding that open product stability is subject to the specific handling and
 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

Certificate of Analysis chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Ambient

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

CERTIFIED VALUES

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

Ship:

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

P&T Methanol

CAS# 67-56-1 Purity 99%

Solvent:

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μا



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

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
 the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
 information, with the knowledge/understanding that open product stability is subject to the specific handling and
 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.





Iac-MRA



ACCRED ISO 17034 Ac Reference Mater Certificate 4:





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

www.restek.com

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0193887

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size:

2 mL

Pkg Amt:

nt: > 1 mL

Expiration Date:

April 30, 2026

Storage:

0°C or colder

Ship:

: Ambient

CERTIFIED VALUES

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

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol/Water (90:10)

CAS#

67-56-1/7732-18-5

Purity 99%

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

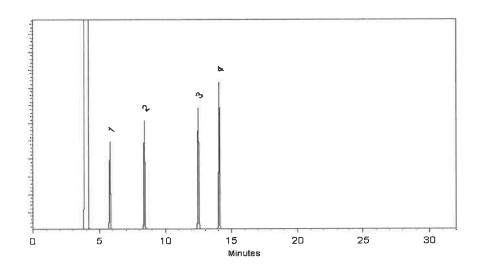
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

Josh McCloskey - Operations Technician I

Date Mixed:

24-Jan-2023

Balance Serial #

B707717271

Christie Mills - Operations Tech II - ARM QC

Date Passed:

27-Jan-2023



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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





Iac-MRA



ACCRED ISO 17034 Ac Reference Mater Certificate 4:





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

www.restek.com

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0193887

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size:

2 mL

Pkg Amt:

nt: > 1 mL

Expiration Date:

April 30, 2026

Storage:

0°C or colder

Ship:

: Ambient

CERTIFIED VALUES

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

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol/Water (90:10)

CAS#

67-56-1/7732-18-5

Purity 99%

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

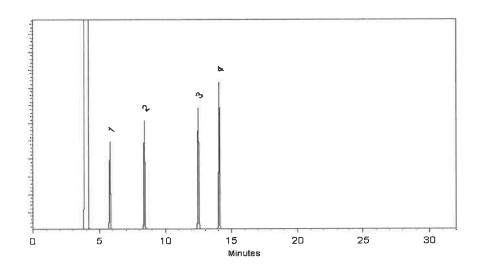
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

Josh McCloskey - Operations Technician I

Date Mixed:

24-Jan-2023

Balance Serial #

B707717271

Christie Mills - Operations Tech II - ARM QC

Date Passed:

27-Jan-2023



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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













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

Certificate of Analysis chromatographic plus

www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30042

Lot No.: A0194279

Description:

502.2 Calibration Mix #1

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

Container Size: **Expiration Date:**

October 31, 2029

Pkg Amt:

> 1 mL

Storage:

0°C or colder

Ship: **Ambient**

CERTIFIED VALUES

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

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol

CAS# 67-56-1 Purity 99%



Column:

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

Carrier Gas:

helium-constant flow 2.0 mL/min.

Temp. Program:

40°C (hold 6 min.) to 100°C

@ 6°C/min.

Inj. Temp:

200°C

Det. Temp: 250°C

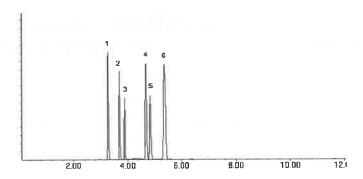
Det. Type: MSD

Split Vent:

Split ratio 10:1

Inj. Vol

1µl



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

Tom Suckar Mix Technician

Date Mixed:

03-Feb-2023

Balance Serial #

B707717271

Church 1966

Christie Mills - Operations Tech II - ARM QC

Date Passed:

07-Feb-2023



Expiration Notes:

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

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/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

Certificate of Analysis chromatographic plus

www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30042

Lot No.: A0194279

Description:

502.2 Calibration Mix #1

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

Container Size: **Expiration Date:**

October 31, 2029

Pkg Amt:

> 1 mL

Storage:

0°C or colder

Ship: **Ambient**

CERTIFIED VALUES

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

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol

CAS# 67-56-1 Purity 99%



Column:

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

Carrier Gas:

helium-constant flow 2.0 mL/min.

Temp. Program:

40°C (hold 6 min.) to 100°C

@ 6°C/min.

Inj. Temp:

200°C

Det. Temp: 250°C

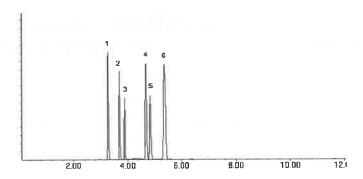
Det. Type: MSD

Split Vent:

Split ratio 10:1

Inj. Vol

1µl



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

Tom Suckar Mix Technician

Date Mixed:

03-Feb-2023

Balance Serial #

B707717271

Church 1966

Christie Mills - Operations Tech II - ARM QC

Date Passed:

07-Feb-2023



Expiration Notes:

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

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/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

Certificate of Analysis gravimetric

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: **Expiration Date:** 2 mL

April 30, 2026

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

Solvent:

P&T Methanol

CAS#

67-56-1

Purity

99%

Parker 7. Brown Russ Bookhamer - Operations Technician i

Date Mixed:

11-Apr-2023

Balance: 1127510105



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- 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

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30042

Lot No.: A0197644

Description:

502.2 Calibration Mix #1

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

Container Size:

2 mL

Pkg Amt:

> 1 mL

Expiration Date:

January 31, 2030

Storage:

0°C or colder

Ship:

Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Dichlorodifluoromethane (CFC-12)	75-71-8	00012554	99%	2,001.6 μg/mL	+/- 112.7159
2	Chloromethane (methyl chloride)	74-87-3	SHBM9611	99%	2,002.0 μg/mL	+/- 112.7840
3	Vinyl chloride	75-01-4	00015559	99%	2,002.2 μg/mL	+/- 112.6713
4	Bromomethane (methyl bromide)	74-83-9	101604	99%	2,006.4 μg/mL	+/- 112.8861
5	Chloroethane (ethyl chloride)	75-00-3	107-401039114-1	99%	2,000.9 μg/mL	+/- 112.5990
6	Trichlorofluoromethane (CFC-11)	75-69-4	MKCL8411	99%	1,999.2 μg/mL	+/- 112.4861

^{*} 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

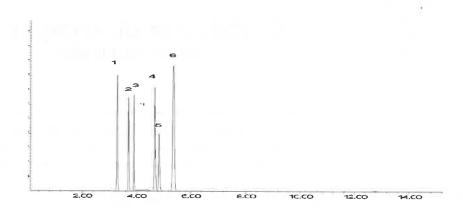
Det. Type: MSD

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.











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.: A0199224

Description:

8260B Acetates Mix

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

Container Size:

2 mL

Pkg Amt: > 1 mL

Expiration Date:

December 31, 2024

-20°C or colder

Handling:

This product is photosensitive.

Storage:

Ship: On Ice

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# 67-56-1

Purity 99%

Tech Tips:

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



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

Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

250°C

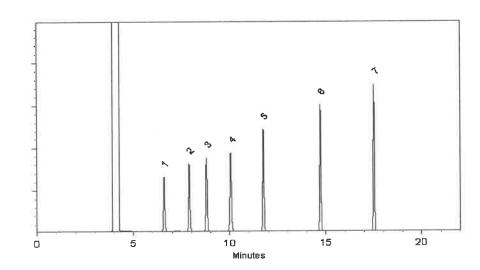
Det. Type:

Split Vent:

40 ml/min

Inj. Vol

 $1\mu l$



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

Tom Suckar - Mix Technician

Date Mixed:

22-Jun-2023

Balance Serial #

B251644995

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

26-Jun-2023

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
 the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
 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











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.: A0200785

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size: Expiration Date: 2 mL

November 30, 2026

Pkg Amt:

> 1 mL

Storage:

0°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

Solvent:

P&T Methanol/Water (90:10)

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

Purity

99%

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μΙ



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

Laith Clemente - Operations Technician!

Date Mixed:

09-Aug-2023

Balance Serial #

B707717271

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

16-Aug-2023

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



Certificate of Analysis

chromatographic plus

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

www.restek.com











FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0200785

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size: Expiration Date: 2 mL

November 30, 2026

Pkg Amt:

> 1 mL

Storage: 0°C or colder

> Ship: **Ambient**

CERTIFIED VALUES

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

Solvent:

P&T Methanol/Water (90:10)

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

Purity 99%

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μΙ



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

Laith Clemente - Operations Technician!

Date Mixed:

09-Aug-2023

Balance Serial #

B707717271

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

16-Aug-2023

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



Certificate of Analysis

chromatographic plus

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

www.restek.com











FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0200785

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size: Expiration Date: 2 mL

November 30, 2026

Pkg Amt:

> 1 mL

Storage: 0°C or colder

> Ship: **Ambient**

CERTIFIED VALUES

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

Solvent:

P&T Methanol/Water (90:10)

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

Purity 99%

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μΙ



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

Laith Clemente - Operations Technician!

Date Mixed:

09-Aug-2023

Balance Serial #

B707717271

Marlina Cowan - Operations Tech II ARM QC

Date Passed:

16-Aug-2023

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



CERTIFIED REFERENCE MATERIAL









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

www.restek.com

Certificate of Analysis

chromatographic

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555408-FL

Lot No.: A0205177

Description:

Custom Vinyl Acetate Standard

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

Container Size:

2 mL

Pkg Amt: > 1 mL

Expiration Date:

June 30, 2025

Storage: -20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

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

^{*} Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

Tech Tips:

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



Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

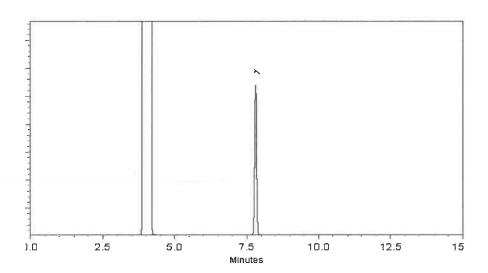
250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol 1µl



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

Tom Suckar - Mix Technician

Date Mixed:

06-Dec-2023

Balance Serial #

1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

11-Dec-2023

REAGNED Tyle bedan or Hellan by N. Net



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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





CERTIFIED REFERENCE MATERIAL









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

www.restek.com

Certificate of Analysis chromatographic

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555408-SL

Lot No.: A0205179

Description:

Custom Vinyl Acetate Standard

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

Container Size:

2 mL

Pkg Amt:

> 1 mL

Expiration Date:

June 30, 2025

Storage: -20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# 67-56-1 Purity 99%

Tech Tips:

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

Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

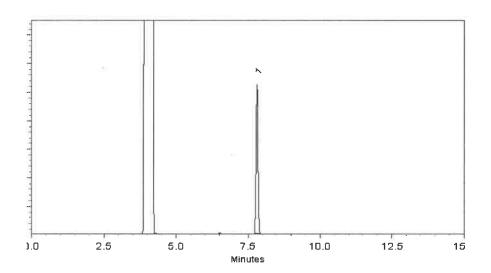
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

The state of the s

Daniel Wasson - Operations Tech I

Date Mixed:

06-Dec-2023

Balance Serial #

1127510105

Jennifer Poliino - Operations Tech III - ARM QC

Date Passed:

11-Dec-2023

できない ひろうちままから かれ ようから 気入性のはひ

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

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555408-SL

Lot No.: A0205179

Description:

Custom Vinyl Acetate Standard

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

Container Size:

2 mL

2 111L

Pkg Amt:

> 1 mL

Expiration Date:

Handling:

June 30, 2025

Storage: -20°C or colder

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

Tech Tips:

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

Quality Confirmation Test

Column:

105m x 0.53mm x 3.0μm Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

250°C

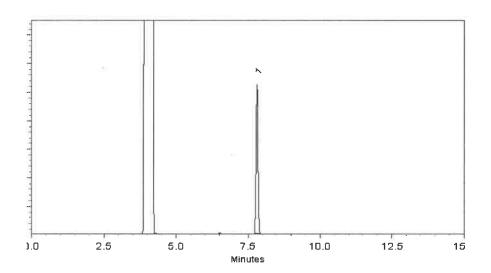
Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol 1µl



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

The state of the s

Daniel Wasson - Operations Tech I

Date Mixed:

06-Dec-2023

Balance Serial #

1127510105

Jennifer Poliino - Operations Tech III - ARM QC

Date Passed:

11-Dec-2023

できない ひろうちままから かれ ようから 気入性のはひ

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 - 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

^{*} 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 - 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

^{*} 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

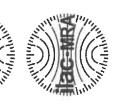


CERTIFIED REFERENCE MATERIAL



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



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

www.restek.com

Certificate of Analysis

gravimetric

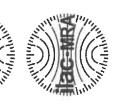


CERTIFIED REFERENCE MATERIAL



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



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

Part Number:

CERTIFIED WEIGHT REPORT

Lot Number:

Bromochloromethane 070122 Description:

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

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

0.0002 5E-05 25.0

Balance Uncertainty Flask Uncertainty

EC592-US Solvent: Methanol

Lot#

Gabriel Helland Formulated By:

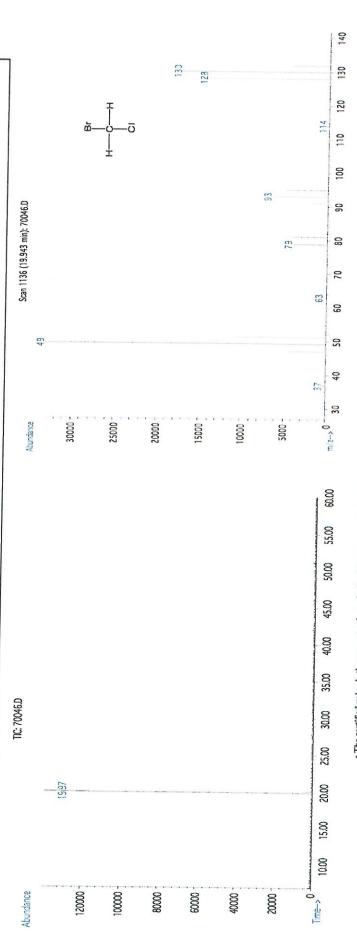
070122 DATE 070122 Pedro L. Rentas Reviewed By

DATE

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

Expanded

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



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

Lot # 070122





Material No.: 9077-02

Batch No.: 22L0562016

Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA







Material No.: 9077-02

Batch No.: 22L0562016

Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA







Material No.: 9077-02

Batch No.: 22L0562016

Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA







Material No.: 9077-02

Batch No.: 22L0562016

Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA







Material No.: 9077-02

Batch No.: 22L0562016

Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA







Material No.: 9077-02

Batch No.: 22L0562016

Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	= 33.3 % ≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	= ···	0.2 ppm 0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA

