

# Prep Standard - Chemical Standard Summary

Order ID : P3671

Test : VOCMS Group5

Prepbatch ID :

Sequence ID/Qc Batch ID: vy082124,vy082224,

### Standard ID :

VP126915,VP128290,VP128297,VP128762,VP128763,VP128767,VP129228,VP129229,VP129517,VP129518,VP129852,VP129853,VP129854,VP129859,VP129874,VP129875,VP129876,VP129915,VP129916,VP129917,VP129918,VP129919,VP129919,VP129920,

#### Chemical ID :

V12794,V12798,V13390,V13444,V13463,V13705,V13800,V13801,V13952,V13953,V14016,V14017,V14103,V14104,V 14140,V14141,V14143,V14147,V14148,V14169,V14170,V14202,V14207,V14219,V14288,V14411,V14412,V14413,V14 414,V14467,V14468,V14469,W3112,



Recipe ID 249	NAME 8260 Surrogate, 100PPM	<u>NO.</u> VP126915	Prep Date 04/02/2024	Expiration Date 09/19/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 04/10/2024
FROM	0.20000ml of V13705 + 49.80000ml	I of V14141 =	= Final Quanti	ty: 50.000 ml				

Recipe ID 218	<u>NAME</u> BFB, 25PPM	<u>NO.</u> VP128290	<u>Prep Date</u> 06/10/2024	Expiration Date 11/23/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 06/12/2024
FROM	0.25000ml of V13390 + 24.75000ml of	I of V14148 =	Final Quanti	ty: 25.000 ml				00/12/2024



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Recipe ID 1917	NAME 8260 Internal standard 50 ppm	<u>NO.</u> VP128297	Prep Date 06/10/2024	Expiration Date 11/23/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 06/12/2024
FROM	0.02000ml of V14288 + 9.98000ml o	f V14148 =	Final Quantity	y: 10.000 ml				

<b>Recipe</b>				<b>Expiration</b>	<b>Prepared</b>			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Mahesh Dadoda
1810		<u>VP128762</u>	07/01/2024	12/11/2024	Semsettin	None	None	
	Std(2-CVE)-800ppm				Yesilyurt			07/02/2024
FROM	0.50000ml of V12798 + 1.50000ml of	V12794 + 2	23.00000ml of	f V14147 = Fin	al Quantity: 25.	000 ml		



<u>Recipe</u> <u>ID</u> 1811	NAME 8260 Working Std(2-CVE)-500ppm	<u>NO.</u> VP128763	Prep Date 07/01/2024	Expiration Date 12/11/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/02/2024
<u>FROM</u>	3.75000ml of V14147 + 6.25000ml of	f VP128762	= Final Quar	ntity: 10.000 ml				

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u> Mahesh Dadoda
252	8260 Working STD (BCM)-First source, 100PPM	<u>VP128767</u>	07/01/2024	12/11/2024	Semsettin Yesilyurt	None	None	07/02/2024
FROM	0.50000ml of V13463 + 9.50000ml of	f V14147 =	Final Quantity	/: 10.000 ml				



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Recipe ID 51	NAME 8260 Working STD (Acrolein) -first source, 800PPM	<u>NO.</u> VP129228	Prep Date 07/25/2024	Expiration Date 08/24/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/30/2024
FROM	1.00000ml of V14411 + 1.00000ml of Quantity: 25.000 ml	V14412 + 1	1.00000ml of 1	V14413 + 1.000	00ml of V14414	4 + 21.00000ml	of V14143 = 1	Final

<b>Recipe</b>				Expiration	<b>Prepared</b>			Supervised By
ID	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Mahesh Dadoda
56	8260 Working STD (Acrolein) -first	<u>VP129229</u>	07/25/2024	08/24/2024	Semsettin	None	None	
	source, 500PPM				Yesilyurt			07/30/2024
FROM	5.62500ml of V14143 + 9.37500ml of	f VP129228	= Final Quar	ntity: 15.000 ml				



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# VOC STANDARD PREPARATION LOG

Recipe ID 257	NAME 8260 Calibration Working STD Mix-First source, 160PPM	<u>NO.</u> VP129517	Prep Date 08/05/2024	Expiration Date 09/14/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/08/2024
FROM	0.40000ml of V13444 + 1.00000ml of 1.00000ml of V14016 + 1.00000ml of 1.00000ml of V14170 + 1.00000ml of Quantity: 25.000 ml	f V14017 + <sup>-</sup>	1.00000ml of '	V14103 + 1.000	000ml of V1410	4 + 1.00000ml d	of V14169 +	Final

<b>Recipe</b>				Expiration	<b>Prepared</b>			Supervised By
ID	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Mahesh Dadoda
244	8260 Calibration Working STD	<u>VP129518</u>	08/05/2024	09/14/2024	Semsettin	None	None	
	Mix-First source, 100PPM				Yesilyurt			08/08/2024
FROM	7.50000ml of V14143 + 12.50000ml	of VP12951	7 = Final Qua	antity: 20.000 n	nl			

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Recipe ID 732	NAME BFB TUNE CHECK - SOIL	<u>NO.</u> VP129852	Prep Date 08/21/2024		Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
<u>FROM</u>	4.99800ml of W3112 + 0.00200ml of	VP128290	= Final Quant	tity: 5.000 ml	<u> </u>			

Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129853	<u>Prep Date</u> 08/21/2024		<u>Prepared</u> <u>By</u> Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda		
FROM	FROM         4.98000ml of W3112 + 0.00250ml of VP126915 + 0.00250ml of VP128763 + 0.00250ml of VP128767 + 0.00250ml of VP129299         0.00250ml of VP129518 + 0.00500ml of VP128297 = Final Quantity: 5.000 ml									



Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129854	Prep Date 08/21/2024	Prepared By Romaben Patel	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129518 + 0.00500				2128767 + 0.00	250ml of VP12	29229

Recipe				Expiration	Prepared			Supervised By		
ID	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Mahesh Dadoda		
51	8260 Working STD (Acrolein) -first	<u>VP129858</u>	08/21/2024	09/15/2024	Semsettin	None	None			
	source, 800PPM				Yesilyurt			08/24/2024		
FROM	FROM 1.00000ml of V14469 + 1.50000ml of V14467 + 1.50000ml of V14468 + 21.00000ml of V14140 = Final Quantity: 25.000 ml									



Recipe ID 56	NAME 8260 Working STD (Acrolein) -first source, 500PPM	<u>NO.</u> VP129859	Prep Date 08/21/2024	Expiration Date 09/15/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	7.50000ml of V14140 + 12.50000ml o	of VP12985	8 = Final Qua	antity: 20.000 n	าไ			

<u>Recipe</u> <u>ID</u> 732	NAME BFB TUNE CHECK - SOIL	<u>NO.</u> VP129874	<u>Prep Date</u> 08/21/2024		Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.99800ml of W3112 + 0.00200ml of	L VP128290	I = Final Quant	l tity: 5.000 ml	I I			00/2 //2021



Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129875	Prep Date 08/21/2024	<u>Prepared</u> <u>By</u> Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129859 + 0.00500				P128767 + 0.00	250ml of VP12	29518

<u>Recipe</u> <u>ID</u> 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129876	<u>Prep Date</u> 08/21/2024	Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
<u>FROM</u>	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129859 + 0.00500				9128767 + 0.00	250ml of VP12	29518



Recipe ID 732	NAME BFB TUNE CHECK - SOIL	<u>NO.</u> VP129915	Prep Date 08/22/2024		Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.99800ml of W3112 + 0.00200ml of	VP128290	= Final Quant	Lity: 5.000 ml	<u> </u>			

<u>Recipe</u> <u>ID</u> 732	NAME BFB TUNE CHECK - SOIL	<u>NO.</u> VP129916	Prep Date 08/22/2024		Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.99800ml of W3112 + 0.00200ml of	L VP128290	I = Final Quant	tity: 5.000 ml				00/24/2024



Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129917	Prep Date 08/22/2024	Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129859 + 0.00500				P128767 + 0.00	250ml of VP12	29518

<u>Recipe</u> <u>ID</u> 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129918	<u>Prep Date</u> 08/22/2024	Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
<u>FROM</u>	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129859 + 0.00500				9128767 + 0.00	250ml of VP12	29518



Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129919	Prep Date 08/22/2024	Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
FROM	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129859 + 0.00500				P128767 + 0.00	250ml of VP12	29518

<u>Recipe</u> <u>ID</u> 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP129920	<u>Prep Date</u> 08/22/2024	Prepared By Romaben Patel	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/24/2024
<u>FROM</u>	4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP129859 + 0.00500				9128767 + 0.00	250ml of VP12	29518



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 #
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 / Received By	Chemtech Lot #

	Supplier	ItemCode / ItemName	Lot #	Date	Opened By	Received By	Lot #
Re	stek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0181905	12/14/2024	06/14/2024 / SAM	01/23/2023 / SAM	V13444

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 #
Restek	555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2]	A0196865	10/02/2024	04/02/2024 / SAM	04/12/2023 / SAM	V13705



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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0194279	01/30/2025	07/30/2024 / SAM	05/31/2023 / SAM	V13800
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0194279	12/28/2024	06/28/2024 / SAM	05/31/2023 / SAM	V13801
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0196115	09/30/2024	06/14/2024 / SAM	09/25/2023 / SAM	V13952
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0196115	09/30/2024	06/14/2024 / SAM	09/25/2023 / SAM	V13953
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	12/14/2024	06/14/2024 / SAM	11/22/2023 / SAM	V14016
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	12/14/2024	06/14/2024 / SAM	11/22/2023 / SAM	V14017



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205179	12/14/2024	06/14/2024 / SAM	12/22/2023 / SAM	V14103
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205179	12/14/2024	06/14/2024 / SAM	12/22/2023 / SAM	V14104
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	02/16/2025	08/16/2024 / SAM	02/06/2024 / SAM	V14140
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	09/19/2024	03/19/2024 / SAM	02/06/2024 / SAM	V14141
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	01/22/2025	07/22/2024 / SAM	02/06/2024 / SAM	V14143
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 #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624	12/14/2024	06/14/2024 / SAM	02/20/2024 / SAM	V14169
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624	12/14/2024	06/14/2024 / SAM	02/20/2024 / SAM	V14170

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	12/25/2024	06/25/2024 / SAM	02/28/2024 / SAM	V14202

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	12/25/2024	06/25/2024 / SAM	02/28/2024 / SAM	V14207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0200785	12/25/2024	06/25/2024 / SAM	02/28/2024 / SAM	V14219



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	A0210184	06/10/2025	06/10/2024 / SAM	04/15/2024 / SAM	V14288
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	072424	08/24/2024	07/25/2024 / SAM	07/25/2024 / SAM	V14411
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	072424	08/24/2024	07/25/2024 / SAM	07/25/2024 / SAM	V14412
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	072424	08/24/2024	07/25/2024 / SAM	07/25/2024 / SAM	V14413
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	072424	08/24/2024	07/25/2024 / SAM	07/25/2024 / SAM	V14414
Supplier	ItemCode / ItemName	Lot #	Expiration	Date Opened /	Received Date /	Chemtech

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	081524	09/15/2024	08/16/2024 / SAM	08/16/2024 / SAM	V14467



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	081524	09/15/2024	08/16/2024 / SAM	08/16/2024 / SAM	V14468
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	081524	09/15/2024	08/16/2024 / SAM	08/16/2024 / SAM	V14469
Supplier	ItemCode / ItemName	Lot #	Expiration	Date Opened /	Received Date /	Chemtech
Supplier			Date	Opened By	Received By	Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112



www.absolutestandards.com

-**Certified Reference Material CRM**  ¢,



CEF	TIFIED WEIGHT REPORT																
		er: 02162	4	-						Solvent(s): Methanoi	EG359-US	Q12			0	GHI	
	Expiration Da	69 con	sal VOA Meg nponents											Formula	ated By:	Preshant Chaufer	021624 DATE
	Recommended Storag Nominal Concentration (µg/m)	e: Freezer													4	2. A.	
	NIST Test IC	#: BUTB				5 Balance Unce								Review		Pedro L. Rentas	021624 DATE
	Weight(a) shown below were combine			100.	0 0.02	1 Flask Uncerta	daty							Expande	rd	SDS information	
	Compound	(RM#) Pert Numb	Lot er Number	Di). Facto	Initial r Vol. (m	initial L) Conc.(ug/mi	Nominal	Purity L) (%)	Purity Uncertainty	Uncortainty y Pipette (mL)	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL	Uncertain	rty (Sol	vent Safety Info. On Atta OSHA PEL (TWA)	
1. 2.	Acetonitrile	(0324)	021644	NA		NA	2000	99.99	0.2	NA	0.20007	0.20020	2001.3	8.1	75-05-8	40 ppm (70mg/m3/8H)	ori-rat 2460mg/kg
3.	Allyl chloride (3-Chloropropene) Carbon disulphide	(0325) (0060)	102396 MKCR858	NA 11 NA	NA	NA NA	2000	99.99	0.2	NA	0.20207	0.20221	2001.4 2001.6	8.2 8.1	107-05-1 75-15-0	1 ppm (3mg/m3/8H)	orl-rat 700mg/kg
4,	cis-1,4-Dichloro-2-butene	(1198)	14718EF		NA	NA	2000	95	0.2	NA	0.21058	0.21069	2001.1	B,5	1478-11-5	4 ppm (12mg/m3) (skin) 5 N/A	ori-rat 1200mg/kg N/A
6.	trans-1,4-Dichloro-2-butene Diethyl ether	(0486) (0153)	MKBP6041 K18CAS00		NA	NA	2000	96.5	0.2	NA	0.20731	0.20748	2001.7	8.4	110-57-6	N/A	N/A
7.		(0381)	06126PX	NA	NA	NA	2000	99	0.2	NA	0.20025	0.20240	2001.5	8.1	80-29-7 97-63-2	N/A N/A	NA
8. 9.	lodomethane	(0489)	SH8F8718		NA	NA	2000	99.5	0.2	NA	0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mp/m3/8H)(sidn	orl-rat 14800mg/kg i) orl-rat 76mg/kg
10.	2-Methyl-1-propanol Methacrylonitrile	(0445)	15241EB 00427ET	NA	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 2460mg/kg
11.	Methyl acrylate	(1075)	SHBK0679		NA	NA	2000	99 99.9	0.2	NA NA	0.20207	0.20221	2001.4	8.2	126-98-7 96-33-3	1 ppm (3mg/m3/8H)(skin)	
	Methyl methacrylate	(0404)	MKBW5137		NA	NA	2000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	10 ppm(35mg/m3/8H)(sidn 100 ppm (410mg/m3/8H)	ori-ret 277mg/kg ori-ret 7872mg/kg
	Nitrobenzene 2-Nitropropane	(0228) (0461)	01213TV 14002JX	NA	NA	NA	2000	99	0.2	NA	0.20207	0.20220	2001.3	8.2	98-95-3	1 ppm (5mg/m3/8H)(akin)	
	Peniactiloroethane	(0450)	HGA01	NA	NA	NA NA	2000	97.3 98	0.2	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35mg/m3/6H)	orl-rat 720mg/kg
	1,1,2-Trichlorotrifiuoroethane	(0474)	18930	NA	NA	NA	2000	88	0.2	NA	0.20413	0.20430	2001.8	8.3	76-01-7 78-13-1	N/A 1000 ppm (7500mg/m3/8H	N/A orl-rat 43g/kg
	Bromodichioromethane	35171	101623	0.05	5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	orf-rat 43g/kg
	Dibromochloromethane cis-1,2-Dichloroethene	35171	101623	0.05	6.00	40002.1	2000	NA	NA	0.017	NA	NA	1999.6	23.0	124-48-1	NA	orl-rat 648mg/kg
	trans-1,2-Dichloroethone	35171	101623	0.05	5.00	40003.1 40002.4	2000	NA	NA	0.017	NA	NA	1999.7	22.9	158-59-2	N/A	N/A
	Methylene chloride	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA	1999.6	23.0	156-60-5	500 ppm	ort-rat 1235mg/kg
	1,1-Dichloroethene	32251	102023	0.10	10,00	20001.8	2000	NA	NA	0.042	NA	NA	1009.7	20,4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat 820mg/kg ori-rat 200mg/kg
	Bromotorm Carbon tetrachloride	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	orl-rat 933mg/kg
	Chlorotom	85321	020724	0.10	10.00	20003.4 20024.0	2000	NA	NA	0.042	NA	NA	1999.8	20.4	58-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350mg/kg
	Dibromomethane	95321	020724	0.10	10.00	20002.9	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-68-3 74-95-3	50 ppm (240mp/m3) (CL) N/A	orf-ret 908mg/kg
	1,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	orl-rat 106mg/kg orl-rat 725mg/kg
	2,2-Dichloropropane Tetrachloroethene	95321 95321	020724	0.10	10.00	20003.4 20201.1	2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	N/A	N/A
-	1,1,1-Trichloroethane	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA	NA	2019.6	20.6	127-18-4 71-55-6	25 ppm (170mg/m3/8H)(final	
	2-Dibromo-3-chloropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA	2000.3	20.0	96-12-8	350 ppm (1900mg/m3/8H) 0.001 ppm	orl-rat 10300mg/kg orl-rat 170mg/kg
	I,2-Dibromoethane	35161 35161	112322	0.05	5.00	40024.8	2000	NA	NA	0.017	NA	NA	2000.7	22.9	108-93-4	20 ppm (8H)	orf-rat 108mg/kg
	,2-Dichloropropane	35161	112322	0.08	5.00	40018.0 40051.0	2000	NA	NA	0.017	NA NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670mg/kg
	,3-Dichloropropane	35161	112322	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8H) N/A	orl-rat 1947mg/kg Unr-muli 3600mg/kg
	.1-Dichloropropene	35161	112322	0.05	5.00	40012.1	2000	NA	NA	0.017	NA	NA	2000.1	29.7	563-58-6	N/A	N/A
_	ia-1,3-Dichloropropene rans-1,3-Dichloropropene	35161 35161	112322	0.05	5.00	40010.0	2000	NA NA	NA	0.017	NA	NA	2000.0	23.0	10061-01-5	N/A	N/A
	lexachloro-1,3-butadiene	35181	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.4 2000.6	23.0 29.7	10061-02-8 87-68-3	N/A	N/A
	1,1,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.0	22.9	630-20-6	0.02 ppm (0.24mg/m3/8H) N/A	ori-rat 62mg/kg ori-rat 670mg/kg
	,1,2,2-Tetrachloroethane ,1,2-Trichloroethane	35161 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)(eldn)	gAgm008 tsr-ho
	richloroethene	35161	112322	0.05	5.00 5.00	40006.6	2000	NA	NA	0.017	NA NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	orl-rat 636mg/kg
44. 1	,2,3-Trichloropropane	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/8H)	orl-mus 2402mg/kg
	enzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	10 ppm (60mg/m3/8H) 1 ppm	orl-rat 149.6mg/kg orl-rat 4894mg/kg
	romobenzene Butvi benzene	35162 35162	050823	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-86-1	N/A	orl-rat 2000mg/kg
48. E	thyi benzene	35162	050823	0.05	5.00	40003.8 40004.8	2000	NA	NA	0.017	NA	NA	1999.7 1999.7	22.9	104-51-8	N/A	N/A
49. P	isopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	100-41-4	100 ppm (435mg/m3/8H) N/A	orl-rat >2000mg/kg orl-rat 4750mg/kg
50. N 51. 5	aphthalene	35162	050823	0.05	5.00	40006.2	2000	NA	NA	0.017	NA	NA	1999.8	22.9	91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
52. To		35162 35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	100-42-5	100 ppm	orl-rat 5000mg/kg
53. 1	2,3-Trichlorobenzene	35162	050823	0.05		40003.1	2000	NA	NA	0.017	NA NA	NA	1999.8	22.9	108-88-3 87-61-6	200 ppm	orl-rat 5000mg/kg
	2,4-Trichlorobenzene	35162	050823	0.05	5.00	40006.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	120-82-1	N/A 5 ppm (CL) (40mg/m3)	lpr-mus 1390mg/kg off-rat 756mg/kg
	2,4-Trimethylbenzene 3,5-Trimethylbenzene	35162	050823			40001.8	2000	NA	NA	0.017	NA	NA	1999.6	23.0	95-63-6	N/A	ori-rat 5g/kg
	-Xylane	35162	050823	0.05		40006.7 40005.8	2000	NA NA	NA	0.017	NA	NA	1999.0	22.9	108-67-8	N/A	orl-rat 5000mg/kg
58. 1e	rt-Butyl benzene	35163	101923			40001.2	2000	NA	NA	0.017	NA	NA	1999.8 1999.6	22.9	108-38-3 98-06-6	100 ppm (435mg/m3/8H) N/A	orl-rat 5g/kg N/A
	c-Butyl benzene Norobenzene	35163	101923			40002.4	2000	NA	NA	0.017	NA	NA	1999.6	22.9	135-98-8	N/A	ori-rat 2240mg/kg
	PROFESSION CONTRACTOR OF CONTRACTOR		101923			40003.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	108-90-7	75 ppm (350mg/m3/8H)	orl-rail 2290mg/kg
60. Či			101020			40000.3	2000	NA	NA	0.017	NA	NA NA	1999.5 1999.7	22.9	95-49-8	50 ppm (250mg/m3/8H)	orl-rat 3900mg/kg
60. Cr 61. 2-	Chiorotoluene Chiorotoluene	35163	101923	0.05					NA				1999.7		106-43-4	N/A	orl-ret 2100mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1,1	Chlorotoluene Chlorotoluene 2-Dichlorobenzene	35163 35163	101923	0.05		40003.8	2000	NA	THPIC .	0.017	NA	NA		22.9	95-50-1	50 ppps (300mm/m/h) //** 1	
60. Cr 61. 24 62. 44 63. 1. 64. 1.	Chlorotoluene Chlorotoluene 2-Dichlorobenzene 3-Dichlorobenzene	35163 35163 35163	101923 101923	0.05	5.00 5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9 23.0	95-50-1 541-73-1	50 ppm (300mp/m3) (CL) N/A	orl-rat 500mg/kg lpr-mus 1062mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1.1 64. 1.1 65. 1.4	Chlorotoluene Chlorotoluene 2-Dichlorobenzene 3-Dichlorobenzene 1-Dichlorobenzene	35163 35163 35163 35163	101923 101923 101923	0.05 0.05 0.05	5.00 5.00 5.00	40001.7 40001.8	2000 2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	23.0 22.9	541-73-1 106-48-7	N/A 76 ppm (450mg/m3/8H)	ipr-mus 1062mg/kg orl-rat 500mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1.1 64. 1.1 65. 1.4 66. 1sc	Chlorotoluene Chlorotoluene 2-Dichlorobenzene 3-Dichlorobenzene 1-Dichlorobenzene apropy/benzene	35163 35163 35163 35163 35163	101923 101923 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40001.7	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6 1999.6 1999.5	23.0 22.9 22.9	541-73-1 106-48-7 98-82-8	N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H)	ori-rat 500mg/kg ori-rat 500mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1.1 64. 1.1 65. 1.4 66. 1sc	Chiorotoluene Chiorotoluene 2-Dichiorobenzene 3-Dichiorobenzene 1-Dichiorobenzene 8-ropytbenzene ?ropytbenzene Kylene	35163 35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.08 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.7 40001.8 40000.8	2000 2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	23.0 22.9	541-73-1 106-48-7	N/A 76 ppm (450mg/m3/8H)	ipr-mus 1062mg/kg orl-rat 500mg/kg

The certified value is the concentration exclusion of the gravimetric and volumetric measurements unless otherwise stated,
 Standards are perpared gravimetrically using balances their are calibration with weights traceable to NEST (see above),
 Standards are certified (<) 0.5% of the stated value, usion otherwise stated,
 Ad Standards, full and the stated value, usion otherwise stated,
 Ad Standards, full empirically using anyote, should be stored with complete light and under appropriate theoretically candillions.
 Uncertainty Reference: Taylor, R.N. and Kuyat, C.E., "Calciolines for Evaluating and Expressing the Uncertainty of NIST Measurement Resolt,"
 NIST Technical Note 1297, U.S. Government Printing Office, Washington, UC, (1994).

Certified Reference Material CRM

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Run 16, "P95317 L021624 [2000µg/mL in MeOH]" Faher 1,1,2-Trichtoro-1,2,2-tr 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". 1,1-Dichiorosthane Acetonitrile Iodomethane Allyi chloride Carbon disullide/Nathylene ( trans-1,2-Dicklonethene 1.1-Dicklonethane 2,2-Dicklonethane Analyzed using Method "GC5-M1". 2,2:0:0kileropropana cis-1,2:0ciliarosthane Mathacrytonityle/Methyl ecry Isobutane/1,1,1-Trictikoredit 1,1-0ciliaropropana Carbon tetrachioride Bernsen(1,2:0kinarostnana 1,2:0kinarosthana 1,2:0kinarosthana Bichmontethana/3:Nikropana Comments 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. GC5-M1 Analysis by Candice Warren amethane/2-Nik Dibrom Distriminanti anti Anteoproje els 1,3-Dickiorpetta Distante Ethyl methacryfels/trans-1,3-D 1,1,2-Trichloroethene Tigtrachiersethene/1,3-Dickior FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=3 Dibromochioromethe 1,2-Dibromoethene 1,2-Directmeethene
 Chorobarrene
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 L,2,2-Titterioreabhare
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 Eronobarrene 1000000 800000 чась 1, и обстоит-3-сти Висопольтана Висопольтана 2.-Спартовона и станоровона и стано 600000 N 400000 Nitrobenzane 1,2,4-Trichkorobenzan Hexachiorobutadiima Naphchalena 1,2,3-Trichkorobenken \$2 200000 50 20 30 10 min

Absolute Standards Inc.

# Safety Data Sheet (SDS) GHS/OSHA Compliant

# Section I Product and Company Identification

Manufacturer's Name	ABSOLUTE STANDARDS INC		ephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr. Hamden CT, 06514	Emergency Tele	phone International	1-352-323-3500
Section II - Hazards Ider		Date Prepared/	Hevised	January 1, 2023
	GHS Classification In accor			
H225 Highly Fi H370 Cause da	lammable Liquid and Vapor amage to organs	H301, 311, 331	Toxic if swallowed, skin con	tact, inhaled
P271 Use in ve	entilated area	H351 P280	Suspected of causing cance Use gloves, eye protection/	er er sheild
P302,332 If on skir	n, wash with soap and water	P305,351,338	If in eyes, remove contacts,	rinse with water
	Signal Word: DANGER			
Section III - Composition	1			
Components (Specific Che Methanol	emical Identity; Common Name(s))	010# 07 50 1		% (optional)
vietriarior	METHYL ALCOHOL	CAS#: 67-56-1		> 97
See Certified Weight	Report For Other Analytes Pre	esent At Trace	Quantities.	
NTENDED USE: REFER				
Section IV. FIRST AID ME	ASURES			
General advice	Consult a physician. Show this safety data	a sheet to the doctor i	n attendance Move to sefe area	
finhaled	If inhaled, move person into fresh air. If no	ot breathing, give artifi	cial respiration. Consult a physician.	
n case of skin contact	Wash with soap and water. Consult a phy	/sician.		
n case of eye contact f swallowed	Rinse thoroughly with plenty of water for a Do NOT induce vomiting. Rinse mouth with	at least 15 minutes and	d consult a physician.	
		in water. Consult a pri	ysiciali.	
Section V. FIREFIGHTING	MEASURES			
lammability	Flammable in the presence of a sour	ce of ignition when the No smoking.	e temperature is above the flash point	. Keep away from
lammability uitable extinguishing media	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for	No smoking. am, dry chemical or ca	arbon dioxide.	. Keep away from
lammability	Flammable in the presence of a sour heat/sparks/open flame/hot surface.	No smoking. am, dry chemical or ca	arbon dioxide.	. Keep away from
lammability uitable extinguishing media	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara	No smoking. am, dry chemical or ca	arbon dioxide.	. Keep away from
lammability uitable extinguishing media rotective equipment for fire	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathing	No smoking. am, dry chemical or ca atus for fire fighting if r	arbon dioxide. necessary.	
lammability uitable extinguishing media rotective equipment for fire section VI. ACCIDENTAL ersonal precautions	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas sive concentrations.	arbon dioxide. necessary. . Ensure adequate ventilation. Remov	
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathing	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. o do so. Do not let pro	arbon dioxide. hecessary. . Ensure adequate ventilation. Remov	re all sources of
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. o do so. Do not let pro	arbon dioxide. hecessary. . Ensure adequate ventilation. Remov	re all sources of
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appare <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b>	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- te in container for disp	arbon dioxide. hecessary. . Ensure adequate ventilation. Remov oduct enter drains. osal according to local regulations (se	re all sources of
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AP recautions for safe handling	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from source	No smoking. am, dry chemical or ca atus for fire fighting if r atus for fire fighting if r or vapors, mist or gas psive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING A	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appare <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo	No smoking. am, dry chemical or ca atus for fire fighting if r atus for fire fighting if r or vapors, mist or gas psive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire ecction VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from sourc Keep container tightly closed in a dry	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire eection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions ection VIII. EXPOSURE C	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from source Keep container tightly closed in a dry and kept upright to prevent leakage.	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire eection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions ection VIII. EXPOSURE C	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from sourc Keep container tightly closed in a dry and kept upright to prevent leakage.	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire eection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions ection VIII. EXPOSURE C ethanol 67-56-1 TVVA in notation TVVA 200 ppn tential for skin absorption , inge	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from sourc Keep container tightly closed in a dry and kept upright to prevent leakage. <b>CONTROLS/PERSONAL PROTECTI</b>	No smoking. am, dry chemical or ca atus for fire fighting if r atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour es of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se r or mist. oking. Prevent the build up of electros ace. Containers which are opened mu	re all sources of se section 13).

Section IX - Physical/Chemical Characteristics

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

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 Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition products for

Stable under recommended storage conditions. Vapours may form explosive mixture with air. Heat, flames, sparks, extreme temperature and sunlight.

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

# Section XI. TOXICOLOGICAL INFORMATION

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

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

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

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

# Section XIV. TRANSPORT INFORMATION

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

#### Section XV. REGULATORY INFORMATION

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

#### Section XVI. Misc. INFORMATION

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



www.absolutestandards.com

-**Certified Reference Material CRM**  ¢,



CEF	TIFIED WEIGHT REPORT																
		er: 02162	4	-						Solvent(s): Methanoi	EG359-US	Q12			0	GHI	
	Expiration Da	69 con	sal VOA Meg nponents											Formula	ated By:	Preshant Chaufer	021624 DATE
	Recommended Storag Nominal Concentration (µg/m)	e: Freezer													4	2. A.	
	NIST Test IC	#: BUTB				5 Balance Unce								Review		Pedro L. Rentas	021624 DATE
	Weight(a) shown below were combine			100.	0 0.02	1 Flask Uncerta	daty							Expande	rd	SDS information	
	Compound	(RM#) Pert Numb	Lot er Number	Di). Facto	Initial r Vol. (m	initial L) Conc.(ug/mi	Nominal	Purity L) (%)	Purity Uncertainty	Uncortainty y Pipette (mL)	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL	Uncertain	rty (Sol	vent Safety Info. On Atta OSHA PEL (TWA)	
1. 2.	Acetonitrile	(0324)	021644	NA		NA	2000	99.99	0.2	NA	0.20007	0.20020	2001.3	8.1	75-05-8	40 ppm (70mg/m3/8H)	ori-rat 2460mg/kg
3.	Allyl chloride (3-Chloropropene) Carbon disulphide	(0325) (0060)	102396 MKCR858	NA 11 NA	NA	NA NA	2000	99.99	0.2	NA	0.20207	0.20221	2001.4 2001.6	8.2 8.1	107-05-1 75-15-0	1 ppm (3mg/m3/8H)	orl-rat 700mg/kg
4,	cis-1,4-Dichloro-2-butene	(1198)	14718EF		NA	NA	2000	95	0.2	NA	0.21058	0.21069	2001.1	B,5	1478-11-5	4 ppm (12mg/m3) (skin) 5 N/A	ori-rat 1200mg/kg N/A
6.	trans-1,4-Dichloro-2-butene Diethyl ether	(0486) (0153)	MKBP6041 K18CAS00		NA	NA	2000	96.5	0.2	NA	0.20731	0.20748	2001.7	8.4	110-57-6	N/A	N/A
7.		(0381)	06126PX	NA	NA	NA	2000	99	0.2	NA	0.20025	0.20240	2001.5	8.1	80-29-7 97-63-2	N/A N/A	NA
8. 9.	lodomethane	(0489)	SH8F8718		NA	NA	2000	99.5	0.2	NA	0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mp/m3/8H)(sidn	orl-rat 14800mg/kg i) orl-rat 76mg/kg
10.	2-Methyl-1-propanol Methacrylonitrile	(0445)	15241EB 00427ET	NA	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 2460mg/kg
11.	Methyl acrylate	(1075)	SHBK0679		NA	NA	2000	99 99.9	0.2	NA NA	0.20207	0.20221	2001.4	8.2	126-98-7 96-33-3	1 ppm (3mg/m3/8H)(skin)	
	Methyl methacrylate	(0404)	MKBW5137		NA	NA	2000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	10 ppm(35mg/m3/8H)(sidn 100 ppm (410mg/m3/8H)	ori-ret 277mg/kg ori-ret 7872mg/kg
	Nitrobenzene 2-Nitropropane	(0228) (0461)	01213TV 14002JX	NA	NA	NA	2000	99	0.2	NA	0.20207	0.20220	2001.3	8.2	98-95-3	1 ppm (5mg/m3/8H)(akin)	
	Peniactiloroethane	(0450)	HGA01	NA	NA	NA NA	2000	97.3 98	0.2	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35mg/m3/6H)	orl-rat 720mg/kg
	1,1,2-Trichlorotrifiuoroethane	(0474)	18930	NA	NA	NA	2000	88	0.2	NA	0.20413	0.20430	2001.8	8.3	76-01-7 78-13-1	N/A 1000 ppm (7500mg/m3/8H	N/A orl-rat 43g/kg
	Bromodichioromethane	35171	101623	0.05	5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	orf-rat 43g/kg
	Dibromochloromethane cis-1,2-Dichloroethene	35171	101623	0.05	6.00	40002.1	2000	NA	NA	0.017	NA	NA	1999.6	23.0	124-48-1	NA	orl-rat 648mg/kg
	trans-1,2-Dichloroethone	35171	101623	0.05	5.00	40003.1 40002.4	2000	NA	NA	0.017	NA	NA	1999.7	22.9	158-59-2	N/A	N/A
	Methylene chloride	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA	1999.6	23.0	156-60-5	500 ppm	ort-rat 1235mg/kg
	1,1-Dichloroethene	32251	102023	0.10	10,00	20001.8	2000	NA	NA	0.042	NA	NA	1009.7	20,4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat 820mg/kg ori-rat 200mg/kg
	Bromotorm Carbon tetrachloride	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	orl-rat 933mg/kg
	Chloroform	85321	020724	0.10	10.00	20003.4 20024.0	2000	NA	NA	0.042	NA	NA	1999.8	20.4	58-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350mg/kg
	Dibromomethane	95321	020724	0.10	10.00	20002.9	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-68-3 74-95-3	50 ppm (240mp/m3) (CL) N/A	orf-ret 908mg/kg
	1,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	orl-rat 106mg/kg orl-rat 725mg/kg
	2,2-Dichloropropane Tetrachloroethene	95321 95321	020724	0.10	10.00	20003.4 20201.1	2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	N/A	N/A
-	1,1,1-Trichloroethane	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA	NA	2019.6	20.6	127-18-4 71-55-6	25 ppm (170mg/m3/8H)(final	
	2-Dibromo-3-chloropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA	2000.3	20.0	96-12-8	350 ppm (1900mg/m3/8H) 0.001 ppm	orl-rat 10300mg/kg orl-rat 170mg/kg
	I,2-Dibromoethane	35161 35161	112322	0.05	5.00	40024.8	2000	NA	NA	0.017	NA	NA	2000.7	22.9	108-93-4	20 ppm (8H)	orf-rat 108mg/kg
	,2-Dichloropropane	35161	112322	0.08	5.00	40018.0 40051.0	2000	NA	NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670mg/kg
	,3-Dichloropropane	35161	112322	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8H) N/A	orl-rat 1947mg/kg Unr-muli 3600mg/kg
	.1-Dichloropropene	35161	112322	0.05	5.00	40012.1	2000	NA	NA	0.017	NA	NA	2000.1	29.7	563-58-6	N/A	N/A
_	ia-1,3-Dichloropropene rans-1,3-Dichloropropene	35161 35161	112322	0.05	5.00	40010.0	2000	NA NA	NA	0.017	NA	NA	2000.0	23.0	10061-01-5	N/A	N/A
	lexachloro-1,3-butadiene	35181	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.4 2000.6	23.0 29.7	10061-02-8 87-68-3	N/A	N/A
	1,1,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.0	22.9	630-20-6	0.02 ppm (0.24mg/m3/8H) N/A	ori-rat 62mg/kg ori-rat 670mg/kg
	,1,2,2-Tetrachloroethane ,1,2-Trichloroethane	35161 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)(eldn)	gAgm008 tsr-ho
	richloroethene	35161	112322	0.05	5.00 5.00	40006.6	2000	NA	NA	0.017	NA NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	orl-rat 636mg/kg
44. 1	,2,3-Trichloropropane	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/8H)	orl-mus 2402mg/kg
	enzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	10 ppm (60mg/m3/8H) 1 ppm	orl-rat 149.6mg/kg orl-rat 4894mg/kg
	romobenzene Butvi benzene	35162 35162	050823	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-86-1	N/A	orl-rat 2000mg/kg
48. E	thyi benzene	35162	050823	0.05	5.00	40003.8 40004.8	2000	NA	NA	0.017	NA	NA	1999.7 1999.7	22.9	104-51-8	N/A	N/A
49. P	isopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	100-41-4	100 ppm (435mg/m3/8H) N/A	orl-rat >2000mg/kg orl-rat 4750mg/kg
50. N 51. 5	aphthalene	35162	050823	0.05	5.00	40006.2	2000	NA	NA	0.017	NA	NA	1999.8	22.9	91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
52. To		35162 35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	100-42-5	100 ppm	orl-rat 5000mg/kg
53. 1	2,3-Trichlorobenzene	35162	050823	0.05		40003.1	2000	NA	NA	0.017	NA NA	NA	1999.8	22.9	108-88-3 87-61-6	200 ppm	orl-rat 5000mg/kg
	2,4-Trichlorobenzene	35162	050823	0.05	5.00	40006.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	120-82-1	N/A 5 ppm (CL) (40mg/m3)	lpr-mus 1390mg/kg off-rat 756mg/kg
	2,4-Trimethylbenzene 3,5-Trimethylbenzene	35162	050823			40001.8	2000	NA	NA	0.017	NA	NA	1999.6	23.0	95-63-6	N/A	ori-rat 5g/kg
	-Xylane	35162	050823	0.05		40006.7 40005.8	2000	NA NA	NA	0.017	NA	NA	1999.0	22.9	108-67-8	N/A	orl-rat 5000mg/kg
58. 1e	rt-Butyl benzene	35163	101923			40001.2	2000	NA	NA	0.017	NA	NA	1999.8 1999.6	22.9	108-38-3 98-06-6	100 ppm (435mg/m3/8H) N/A	orl-rat 5g/kg N/A
	c-Butyl benzene Norobenzene	35163	101923			40002.4	2000	NA	NA	0.017	NA	NA	1999.6	22.9	135-98-8	N/A	ori-rat 2240mg/kg
	PROFESSION CONTRACTOR OF CONTRACTOR		101923			40003.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	108-90-7	75 ppm (350mg/m3/8H)	orl-rail 2290mg/kg
60. Či			101020			40000.3	2000	NA	NA	0.017	NA	NA NA	1999.5 1999.7	22.9	95-49-8	50 ppm (250mg/m3/8H)	orl-rat 3900mg/kg
60. Cr 61. 2-	Chiorotoluene Chiorotoluene	35163	101923	0.05					NA				1999.7		106-43-4	N/A	orl-ret 2100mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1,1	Chlorotoluene Chlorotoluene 2-Dichlorobenzene	35163 35163	101923	0.05		40003.8	2000	NA	THPIC .	0.017	NA	NA		22.9	95-50-1	50 ppps (300mm/m/h) //** 1	
60. Cr 61. 24 62. 44 63. 1. 64. 1.	Chlorotoluene Chlorotoluene 2-Dichlorobenzene 3-Dichlorobenzene	35163 35163 35163	101923 101923	0.05	5.00 5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9 23.0	95-50-1 541-73-1	50 ppm (300mp/m3) (CL) N/A	orl-rat 500mg/kg lpr-mus 1062mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1.1 64. 1.1 65. 1.4	Chlorotoluene Chlorotoluene 2-Dichlorobenzene 3-Dichlorobenzene 1-Dichlorobenzene	35163 35163 35163 35163	101923 101923 101923	0.05 0.05 0.05	5.00 5.00 5.00	40001.7 40001.8	2000 2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	23.0 22.9	541-73-1 106-48-7	N/A 76 ppm (450mg/m3/8H)	ipr-mus 1062mg/kg orl-rat 500mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1.1 64. 1.1 65. 1.4 66. 1sc	Chlorotoluene Chlorotoluene 2-Dichlorobenzene 3-Dichlorobenzene 1-Dichlorobenzene apropy/benzene	35163 35163 35163 35163 35163	101923 101923 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40001.7	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6 1999.6 1999.5	23.0 22.9 22.9	541-73-1 106-48-7 98-82-8	N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H)	ori-rat 500mg/kg ori-rat 500mg/kg
60. Cr 61. 2-4 62. 4-4 63. 1.1 64. 1.1 65. 1.4 66. 1sc	Chicrotoluene Chicrotoluene 2-Dichicrobenzene 3-Dichicrobenzene 1-Dichicrobenzene 8-rogytbenzene ?rogytbenzene Kylene	35163 35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.08 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00	40001.7 40001.8 40000.8	2000 2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	23.0 22.9	541-73-1 106-48-7	N/A 76 ppm (450mg/m3/8H)	ipr-mus 1062mg/kg orl-rat 500mg/kg

The certified value is the concentration exclusion of the gravimetric and volumetric measurements unless otherwise stated,
 Standards are perpared gravimetrically using balances their are calibration with weights traceable to NEST (see above),
 Standards are certified (<) 0.5% of the stated value, usion otherwise stated,
 Ad Standards, full and the stated value, usion otherwise stated,
 Ad Standards, full empirically using anyote, should be stored with complete light and under appropriate theoretically candillions.
 Uncertainty Reference: Taylor, R.N. and Kuyat, C.E., "Calciolines for Evaluating and Expressing the Uncertainty of NIST Measurement Resolt,"
 NIST Technical Note 1297, U.S. Government Printing Office, Washington, UC, (1994).

Certified Reference Material CRM

10



 contac.)
 0,077

 10.33
 0,077

 10.34
 0,077

 10.35
 11.36

 12.361
 12.361

 12.351
 13.64

 14.07
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 14.07
 12.354

 14.07
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Run 16, "P95317 L021624 [2000µg/mL in MeOH]" Faher 1,1,2-Trichtoro-1,2,2-tr 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". 1,1-Dichiorosthane Acetonitrile Iodomethane Allyi chloride Carbon disullide/Nathylene ( trans-1,2-Dicklonethene 1.1-Dicklonethane 2,2-Dicklonethane Analyzed using Method "GC5-M1". 2,2:0:0kileropropana cis-1,2:0ciliarosthane Mathacrytonityle/Methyl ecry Isobutane/1,1,1-Trictikoredit 1,1-0ciliaropropana Carbon tetrachioride Bernsen(1,2:0kinarostnana 1,2:0kinarosthana 1,2:0kinarosthana Bichmontethana/3:Nikropana Comments 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. GC5-M1 Analysis by Candice Warren amethane/2-Nik Dibrom Distriminanti anti Anteoproje els 1,3-Dickiorpetta Distante Ethyl methacryfels/trans-1,3-D 1,1,2-Trichloroethene Tigtrachiersethene/1,3-Dickior FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=3 Dibromochioromethe 1,2-Dibromoethene 1,2-Directmeethene
 Chorobarrene
 L,2,2-Titterioreabhare
 L,2,2-Titterioreabhare
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 Eronobarrene 1000000 800000 чась 1, и обстоит-3-сти Висопольтана Висопольтана 2.-Спартовона и и и и и и и и и и и и сталовородите и и водушение и и водушение и и водушение и и водушение и воду и водушение и водушение и воду и 600000 N 400000 Nitrobenzane 1,2,4-Trichkorobenzan Hexachiorobutadiima Naphchalena 1,2,3-Trichkorobenken \$2 200000 50 20 30 10 min

Absolute Standards Inc.

# Safety Data Sheet (SDS) GHS/OSHA Compliant

# Section I Product and Company Identification

Manufacturer's Name	ABSOLUTE STANDARDS INC		ephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr. Hamden CT, 06514	Emergency Tele	phone International	1-352-323-3500
Section II - Hazards Ider		Date Prepared/	Hevised	January 1, 2023
	GHS Classification In accor			
H225 Highly Fi H370 Cause da	lammable Liquid and Vapor amage to organs	H301, 311, 331	Toxic if swallowed, skin con	tact, inhaled
P271 Use in ve	entilated area	H351 P280	Suspected of causing cance Use gloves, eye protection/	er er sheild
P302,332 If on skir	n, wash with soap and water	P305,351,338	If in eyes, remove contacts,	rinse with water
	Signal Word: DANGER			
Section III - Composition	1			
Components (Specific Che Methanol	emical Identity; Common Name(s))	010# 07 50 1		% (optional)
vietriarior	METHYL ALCOHOL	CAS#: 67-56-1		> 97
See Certified Weight	Report For Other Analytes Pre	esent At Trace	Quantities.	
NTENDED USE: REFER				
Section IV. FIRST AID ME	ASURES			
General advice	Consult a physician. Show this safety data	a sheet to the doctor i	n attendance Move to sefe area	
finhaled	If inhaled, move person into fresh air. If no	ot breathing, give artifi	cial respiration. Consult a physician.	
n case of skin contact	Wash with soap and water. Consult a phy	/sician.		
n case of eye contact f swallowed	Rinse thoroughly with plenty of water for a Do NOT induce vomiting. Rinse mouth with	at least 15 minutes and	d consult a physician.	
		in water. Consult a pri	ysiciali.	
Section V. FIREFIGHTING	MEASURES			
lammability	Flammable in the presence of a sour	ce of ignition when the No smoking.	e temperature is above the flash point	. Keep away from
lammability uitable extinguishing media	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for	No smoking. am, dry chemical or ca	arbon dioxide.	. Keep away from
lammability	Flammable in the presence of a sour heat/sparks/open flame/hot surface.	No smoking. am, dry chemical or ca	arbon dioxide.	. Keep away from
lammability uitable extinguishing media	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara	No smoking. am, dry chemical or ca	arbon dioxide.	. Keep away from
lammability uitable extinguishing media rotective equipment for fire	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathing	No smoking. am, dry chemical or ca atus for fire fighting if r	arbon dioxide. necessary.	
lammability uitable extinguishing media rotective equipment for fire section VI. ACCIDENTAL ersonal precautions	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas sive concentrations.	arbon dioxide. necessary. . Ensure adequate ventilation. Remov	
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL	Flammable in the presence of a sour heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathing	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. o do so. Do not let pro	arbon dioxide. hecessary. . Ensure adequate ventilation. Remov	re all sources of
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. o do so. Do not let pro	arbon dioxide. hecessary. . Ensure adequate ventilation. Remov	re all sources of
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appare <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b>	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- te in container for disp	arbon dioxide. hecessary. . Ensure adequate ventilation. Remov oduct enter drains. osal according to local regulations (se	re all sources of
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AP recautions for safe handling	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from source	No smoking. am, dry chemical or ca atus for fire fighting if r atus for fire fighting if r or vapors, mist or gas psive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire ection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING A	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appare <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo	No smoking. am, dry chemical or ca atus for fire fighting if r atus for fire fighting if r or vapors, mist or gas psive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire ecction VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from sourc Keep container tightly closed in a dry	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire eection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions ection VIII. EXPOSURE C	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from source Keep container tightly closed in a dry and kept upright to prevent leakage.	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire eection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions ection VIII. EXPOSURE C	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from sourc Keep container tightly closed in a dry and kept upright to prevent leakage.	No smoking. am, dry chemical or ca atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour ces of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se or or mist.	re all sources of se section 13).
lammability uitable extinguishing media rotective equipment for fire eection VI. ACCIDENTAL ersonal precautions nvironmental precautions lean up ection VII. HANDLING AI recautions for safe handling orage Conditions ection VIII. EXPOSURE C ethanol 67-56-1 TVVA in notation TVVA 200 ppn tential for skin absorption , inge	Flammable in the presence of a sourn heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara <b>RELEASE MEASURES</b> Wear respiratory protection. Avoid breathin ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe t Contain spillage, and then collect and plac <b>ND STORAGE</b> Avoid contact with skin and eyes. Avo Use ventilation Keep away from sourc Keep container tightly closed in a dry and kept upright to prevent leakage. <b>CONTROLS/PERSONAL PROTECTI</b>	No smoking. am, dry chemical or ca atus for fire fighting if r atus for fire fighting if r ng vapors, mist or gas usive concentrations. to do so. Do not let pro- e in container for disp id inhalation of vapour es of ignition. No smo and well-ventilated pla	arbon dioxide. hecessary. . Ensure adequate ventilation. Remove oduct enter drains. osal according to local regulations (se r or mist. oking. Prevent the build up of electros ace. Containers which are opened mu	re all sources of se section 13).

Section IX - Physical/Chemical Characteristics

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

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 Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition products for

Stable under recommended storage conditions. Vapours may form explosive mixture with air. Heat, flames, sparks, extreme temperature and sunlight.

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

# Section XI. TOXICOLOGICAL INFORMATION

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

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

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

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

# Section XIV. TRANSPORT INFORMATION

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

#### Section XV. REGULATORY INFORMATION

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

#### Section XVI. Misc. INFORMATION

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

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

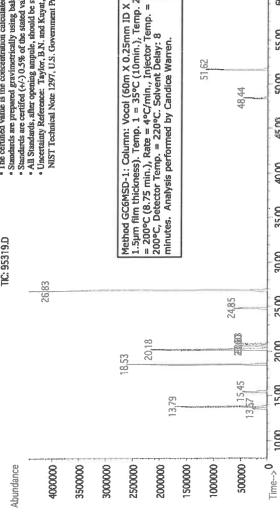
Certified Reference Material CRM



# MEIGUT DEDO CERTIFIED

RTIFIED WEIGHT REPORT								E				
Part Number:	91	95319			S	Solvent(s):	Lot			1		
Lot Number:		032922				Methanol	EC592-US			5	4	
Description:	1	<b>Revised Additions Mix</b>	ons Mix							the second	~ mulhenler	032922
		11 components	lts						Formulated By:	ſ	Prashant Chauhan	DATE
Expiration Date:	0	032925									2	
Recommended Storage:	ula	Refrigerate (4 °C)	(C)							0	Jan Start	
Nominal Concentration (µg/mL):	-	Varied								Karl	a lente	032922
NIST Test ID#:	3	GUTB		5E-05	5E-05 Balance Uncertainty				Reviewed By:		Pedro L. Rentas	DATE
Weight(s) shown below were combined and diluted to (mL):	nd diluter	d to (mL):	100.0	0.012	0.012 Flask Uncertainty			9				
									Expanded		SDS Information	
		Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Solvent	(Solvent Safety Info. On Attached pg.)	ed pg.)
Compound	RM#	Number	Conc (µg/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL) (+/-) (µg/mL)	(++-) (hg/mL)	CAS#	OSHA PEL (TWA)	1.050
1. Acrylonitrile	7	4718CK	10000	66	0.2	1.01015	1.01030	10001.5	40.5	107-13-1	NA	orl-rat 78 ma/ka
2. 1-Chlorobutane	1072	1072 MKCM5711	2000	99.99	0.2	0.20003	0.20020	2001.7	8.1	109-69-3	NA	ori-rat 2670ma/kg
Cyclohexane	1023	28930	2000	66	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050mg/m3/8H)	ort-rat 12705mg/kg
Di-isopropyl ether (DIPE)	987	00412MX	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-20-3		orl-rat 8470mg/kg
5. 1,4-Dioxane	373	03853KE	40000	66	0.2	4.04060	4.04100	40004.0	161.9	123-91-1	25 ppm (90mg/m3/8H)(skin) ort-mus 5700mg/kg	ort-mus 5700ma/kg
6. Hexachioroethane	199	12604HBV	2000	66	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	67-72-1 t ppm (10mg/m3/8H)(skin)	ort-gpg 4970mg/kg
7. Methylcyclohexane	1627	08046KN	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-87-2		NIA
<ol><li>Methyl tert-butyl ether (MTBE)</li></ol>	209	02197JJ	2000	99.8	0.2	0.20041	0.20055	2001.4	8.1	1634-04-4	NA	orl-rat 49/kg

L' MUTUNI		-	4/ 10CN	mm	מת	7.N	CI0101	1.01030	C'INNI	40.5	1-51-701	NA	orl-rat 78 mg/kg
2. 1-Chlorobutane	Je view of the second se	1072	MKCM5711	2000	99.99	0.2	0.20003	0.20020	2001.7	8.1	109-69-3	NA	ori-rat 2670mo/kg
3. Cyclohexane		1023	28930	2000	66	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050ma/m3/8H)	ort-rat 12705mo/kg
4. Di-Isopropyl ether (DIPE)	ther (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
5. 1,4-Dioxane		373	03853KE	40000	66	0.2	4.04060	4.04100	40004.0	161.9	123-91-1		ort-mus 5700mg/kg
6. Hexachloroethane	hane	199	12604HBV	2000	66	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	t ppm (10mg/m3/8H)(skin)	ort-spg 4970mg/kg
7. Methylcyclohexane	exane	1627	08046KN	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-87-2	NA	VN
8. Methyl tert-bu	Methyl tert-butyl ether (MTBE)	209	02197JJ	2000	<b>99.8</b>	0.2	0.20041	0.20055	2001.4	8.1	1634-04-4	NA	orl-rat 49/kg
9. Propionitrile		349	1395468	20000	66	0.2	2.02030	2.02045	20001.5	81.0	107-12-0	NA	ort-rat 39ma/ka
10. Tetrahydrofurar	an	380	SHBH8330	10000	99.9	0.2	1.00105	1.00120	10001.5	40.1	109-99-9	20 ppm (590mg/m3/8H)	ort-rat 1650mo/kg
11. 1,2,3,4-Tetrai	,2,3,4-Tetramethylbenzene	491	AP01	2000	93	0.2	0.21506	0.21520	2001.3	8.7	488-23-3	NA	ort-rat 6408mp/kg
			TIC. 05310 D	0.010		he certified v	alue is the concen	tration calculated	from pravimetric	and volumed	ric measuremen	• The certified value is the concentration calculated from oravimetric and volumetric measurements unless otherwise stated	



In the second sec

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

MSD RT (min.) 13.79

13.56 15.44 18.53

Methyl tert-butyl ether (MTBE)

Di-isopropyl ether Tetrahydrofuran 1-Chlorobutane Cyclohexane

Propionitrile Acrylonitrile

Name

20.17 20.58 20.83 24.84

26.84 48.44 51.62

Methylcyclohexane

1,4-Dioxane

1,2,3,4-Tetramethylbenzene

60.09

55.00

50.00

45.00

40.00

35.00

30.00

25.00

20.00

15.00

10.00

Hexachioroethane

1 of 1

Part # 95319

Lot # 032922

Complian	VH50/5H0	

InsildmoO AHSO/2HD

Safety Data Sheet (SDS)

S to I age9

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

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

Wear self contained breathing apparatus for fire fighting if necessary.

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

ignition. Vapours accumulate to form explosive concentrations.

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

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

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

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

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

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

Printed: 11/13/23

. . νA Eye protection. ed prior to use. Ρеι юд SK!

Section IX - Physical/Chemical Characteristics

Avoid contact with	skin, eves and clothing. Wash hands th	oroughly after handli	ng the product.	
Personal protective	e equipment Respiratory protection	Handle with gloves.	eqeni ed izum sevolo	apecte
Potential for skin a	noiteledni bne noitsegni , noitqnozdi			
Skin notation	mqq 00S AWT			
Methanol	mqq 00S AWT 1-88-78			

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Aethanol-SDS copy.xls

Storage Conditions

Clean up

Precautions for safe handling

Environmental precautions

Protective equipment for fire Suitable extinguishing media

Personal precautions

**Flammability** 

Section VII. HANDLING AND STORAGE

Section VI. ACCIDENTAL RELEASE MEASURES

			SEASURES	Section V. FIREFIGHTING
	ial respiration. Consult a physician. I consult a physician.	ot breathing, give artific ysician. at least 15 minutes and	SORES Consult a physician. Show this safety dat If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph Rinse thoroughly with plenty of water for a Rinse thoroughly with plenty of water for a Rinse mouth w	lf inhaled In case of skin contact In case of eye contact
				INTENDED USE: REFERE
	.səititnsu	) esent tA trace	sport For Other Analytes Pre	
66 <	mqq 002	2,769 mg/kg	L-95-29	lonsriaM
(lenoitqo) %	OSHA PEL	LD50 Oral - Rat	:#SAO	Components:
				Section III - Composition
			Signal Word: DAVGER	۰ کې کې
pli	Toxic if swallowed, skin contact, inl Suspected of causing cancer Use gloves, eye protectionvface she if in eyes, remove contacts, rinse wi	6306,351,338 9280 H361 H301, 311, 331	nasble Liquid and Vapor age to organs illated area vash with soap and water	H370 Cause dam P271 Use in vent
	(SOH AHSO) OFER 8	dance with 29 CFF	GHS Classification in accord	
			ication	Section II - Hazards Identif
<b>362-323-3500</b>		Emergency Telep Date Prepared/R	44 Rossotto Dr. Hamden CT, 06514	Address
-800-232-2023	r AGANAD & ASU enorth	Emergency Teler	ONI SORADNATS ETULOSBA	Manufacturer's Name
		JONAHTA	M NI DIVIOSSID DIAGNATS JA	IDENTITY ANA YTITNEDI
			npany Identification	Section I Product and Con

The information in this Material Safety Data Sheet needs for requirements of the United States Occupational Safety and Health Act and regulations promulgated theraunder (29 CFR supervised by a person trained in characterial state of the analyses as guide to the appropriate precautionary handling of the material by trained personnel, or usego, pand Global Harmoricked System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or usego, pand Global Harmoricked System (GHS). This document is intended only as a guide to the approximation in this chemical handling. The user is responsible for determining the precaution and hangers of this chemical for handling of the material by trained personnel, or usego, protective coloring including eye and face guards and respiratores must be used to onis of any the material or breathing chemical paperside of the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential ascepts protective clother on the label. ABSOLUTE STANDARDS INC. cannot warm of all the potential ascepts of use or interaction with other demicals any interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential ascepts of use or interaction with other demicals or breathing chemical approxements of the interaction with other demicals or breates or the potential uses are not there are post-orders or the potential uses are so varied, ABSOLUTE STANDARDS INC. Cannot warm of all the potential ascepts of use or interaction with other demicals or breates or the potential uses are so varied, ABSOLUTE STANDARDS INC. Cannot warm of all the potential ascepts of use or interaction with other demicals or breates are sponsible. ABSOLUTE STANDARDS INC. The need to approxemate that the chemical aspects the special order or the potential ascepts or the potential uses are not used or the potentical or precent or the potentis or the potential aspects and the s

### Section XVI. Misc. INFORMATION

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

#### Section XV. REGULATORY INFORMATION

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

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

#### Section XIV. TRANSPORT INFORMATION

Dispose with normal Laboratory Solvent Waste.

#### Section XIII. DISPOSAL CONSIDERATIONS

EC100 10'000'0 mg/l - 36 h EC20 54'200'00 mg/l - 54 h FC20 10'000'00 mg/l - 54 h

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

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

#### Section XI. TOXICOLOGICAL INFORMATION

not stoubord notitisogmooeb suobisiseh	ed under fire conditions Carbon oxides
Materials to avoid	sid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids
biovs of anoitibnoC	aat, flames, sparks, extreme temperature and sunlight.
ossibility of hazardous reactions	ipours may form explosive mixture with air.
Chemical stability	able under recommended storage conditions.

#### Section X. STABILITY AND REACTIVITY

Appearance and (
Solubility in Water
IA) viizned roqsv
Vapor Pressure (r
triog Poiling

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

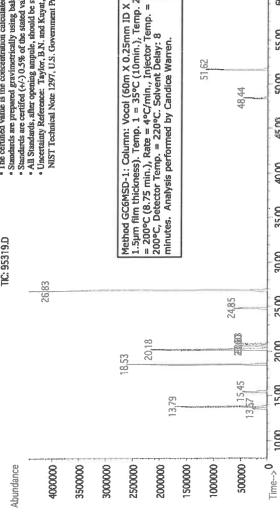
Certified Reference Material CRM



# MEIGUT DEDO CERTIFIED

RTIFIED WEIGHT REPORT								E				
Part Number:		<u>95319</u>			S	Solvent(s):	Lot			1		
Lot Number:		032922				Methanol	EC592-US			5	+	
Description:	1	<b>Revised Additions Mix</b>	ons Mix							the second	Smar heuler	032922
		11 components	lts						Formulated By:	ſ	Prashant Chauhan	DATE
Expiration Date:	9	032925									2	
Recommended Storage:	-	Refrigerate (4 °C)	(C)							0	Jan Start	
Nominal Concentration (µg/mL):	-	Varied								Karl	a lente	032922
NIST Test ID#:	3	GUTB		5E-05	5E-05 Balance Uncertainty				Reviewed By:		Pedro L. Rentas	DATE
Weight(s) shown below were combined and diluted to (mL):	nd dilute.	d to (mL):	100.0	0.012	0.012 Flask Uncertainty			5				
									Expanded		SDS Information	
		Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Solvent	(Solvent Safety Info. On Attached pg.)	ed pg.)
Compound	RN#	Number (	Conc (µg/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL) (+/-) (µg/mL)	(+ -) (hg/ml.)	CAS#	OSHA PEL (TWA)	1.050
1. Acrytonitrile	7	4718CK	10000	66	0.2	1.01015	1.01030	10001.5	40.5	107-13-1	NA	orl-rat 78 ma/ka
2. 1-Chlorobutane	1072	1072 MKCM5711	2000	99.99	0.2	0.20003	0.20020	2001.7	8.1	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 (1050mg/m3/8H)	ort-rat 12705mg/kg
Di-isopropyl ether (DIPE)	987	00412MX	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-20-3		orl-rat 8470mg/kg
5. 1,4-Dioxane	373	03853KE	40000	66	0.2	4.04060	4.04100	40004.0	161.9	123-91-1	25 ppm (90mg/m3/8H)(skin) ort-mus 5700mg/kg	ort-mus 5700ma/kg
6. Hexachioroethane	199	12604HBV	2000	66	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	67-72-1 t ppm (10mg/m3/8H)(skin)	ort-gpg 4970mg/kg
7. Methylcyclohexane	1627	08046KN	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-87-2		NIA
<ol><li>Methyl tert-butyl ether (MTBE)</li></ol>	209	02197JJ	2000	99.8	0.2	0.20041	0.20055	2001.4	8.1	1634-04-4	NA	orl-rat 49/kg
							and a second sec					

- ANI NUTINING	-	4/ 1000	mmi	מת	2.0	CININI	1.01030	C'INNI	40.0	1-51-701	NA	orl-rat 78 mg/kg
2. 1-Chlorobutane	1072	MKCM5711	2000	99.99	0.2	0.20003	0.20020	2001.7	8.1	109-69-3	NA	orl-rat 2670ma/kg
3. Cyclohexane	1023	28930	2000	66	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050ma/m3/8H)	ort-rat 12705mo/kg
4. 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
5. 1,4-Dioxane	373	03853KE	40000	66	0.2	4.04060	4.04100	40004.0	161.9	123-91-1		ort-mus 5700mg/kg
6. Hexachloroethane	199	12604HBV	2000	66	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	t ppm (10mg/m3/8H)(skin)	ort-gpg 4970mg/kg
7. Methylcyclohexane	1627	08046KN	2000	66	0.2	0.20203	0.20215	2001.2	8.2	108-87-2	NA	N/A
8. Methyl tert-butyl ether (MTBE)	209	02197JJ	2000	<b>99.8</b>	0.2	0.20041	0.20055	2001.4	8.1	1634-04-4	NA	orl-rat 49/kg
9. Propionitrile	349	1395468	20000	66	0.2	2.02030	2.02045	20001.5	81.0	107-12-0	NA	ort-rat 39ma/ka
10. Tetrahydrofuran	380	SHBH8330	10000	99.9	0.2	1.00105	1.00120	10001.5	40.1	109-99-9	20 ppm (590mg/m3/8H)	ort-rat 1650mo/kg
11. 1,2,3,4-Tetramethylbenzene	491	AP01	2000	93	0.2	0.21506	0.21520	2001.3	8.7	488-23-3	NA	ort-rat 6408mp/kg
		20.011	TIC: 05210 D	1.	he certified v	alue is the concent	tration calculated	from gravimetric	and volume	tric measuremen	• The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated	



In the second sec

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

MSD RT (min.) 13.79

13.56 15.44 18.53

Methyl tert-butyl ether (MTBE)

Di-isopropyl ether Tetrahydrofuran 1-Chlorobutane Cyclohexane

Propionitrile Acrylonitrile

Name

20.17 20.58 20.83 24.84

26.84 48.44 51.62

Methylcyclohexane

1,4-Dioxane

1,2,3,4-Tetramethylbenzene

60.09

55.00

50.00

45.00

40.00

35.00

30.00

25.00

20.00

15.00

10.00

Hexachioroethane

1 of 1

Part # 95319

Lot # 032922

Complian	VH50/5H0	

InsildmoO AHSO/2HD

Safety Data Sheet (SDS)

S to I age9

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

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

Wear self contained breathing apparatus for fire fighting if necessary.

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

ignition. Vapours accumulate to form explosive concentrations.

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

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

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

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

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

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

Printed: 11/13/23

. . νA Eye protection. ed prior to use. Ρеι юд SK!

Section IX - Physical/Chemical Characteristics

Avoid contact with	skin, eves and clothing. Wash hands th	oroughly after handli	ng the product.	
Personal protective	e equipment Respiratory protection	Handle with gloves.	Gloves must be inspec	apadsu
Potential for skin a	noiteledni bne noitsegni , noitqnozdi			
Skin notation	mqq 00S AWT			
Methanol	mqq 00S AWT 1-88-78			

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Aethanol-SDS copy.xls

Storage Conditions

Clean up

Precautions for safe handling

Environmental precautions

Protective equipment for fire Suitable extinguishing media

Personal precautions

**Flammability** 

Section VII. HANDLING AND STORAGE

Section VI. ACCIDENTAL RELEASE MEASURES

			SEASURES	Section V. FIREFIGHTING
	ial respiration. Consult a physician. I consult a physician.	ot breathing, give artific ysician. at least 15 minutes and	SORES Consult a physician. Show this safety dat If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph Rinse thoroughly with plenty of water for a Rinse thoroughly with plenty of water for a Rinse mouth w	lf inhaled In case of skin contact In case of eye contact
				INTENDED USE: REFEREI
	.səititnsu	) esent tA trace	sport For Other Analytes Pre	
66 <	mqq 002	2,769 mg/kg	L-95-29	lonsriteM
(lenoitqo) %	OSHA PEL	LD50 Oral - Rat	:#SAO	Components:
				Section III - Composition
			Signal Word: DAVGER	۰ کې کې
pli	Toxic if swallowed, skin contact, inl Suspected of causing cancer Use gloves, eye protectionvface she if in eyes, remove contacts, rinse wi	6306,351,338 9280 H361 H301, 311, 331	nasble Liquid and Vapor age to organs illated area vash with soap and water	H370 Cause dam P271 Use in vent
	(SOH AHSO) OFER 8	dance with 29 CFF	GHS Classification in accord	
			ication	Section II - Hazards Identif
<b>362-323-3500</b>		Emergency Telep Date Prepared/R	44 Rossotto Dr. Hamden CT, 06514	Address
-800-232-2023	r AGANAD & ASU enorth	Emergency Teler	ONI SORADNATS ETULOSBA	Manufacturer's Name
		JONAHTA	M NI DIVIOSSID DIAGNATS JA	IDENTITY ANA YTITNEDI
			npany Identification	Section I Product and Con

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#### Section XV. REGULATORY INFORMATION

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

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

#### Section XIV. TRANSPORT INFORMATION

Dispose with normal Laboratory Solvent Waste.

#### Section XIII. DISPOSAL CONSIDERATIONS

EC100 10'000'0 mg/l - 36 h EC20 54'200'00 mg/l - 54 h FC20 10'000'00 mg/l - 54 h

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

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

#### Section XI. TOXICOLOGICAL INFORMATION

not stoubord notitisogmooeb suobisiseh	ed under fire conditions Carbon oxides
Materials to avoid	sid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids
biovs of anoitibnoC	aat, flames, sparks, extreme temperature and sunlight.
ossibility of hazardous reactions	ipours may form explosive mixture with air.
Chemical stability	able under recommended storage conditions.

#### Section X. STABILITY AND REACTIVITY

Appearance and (
Solubility in Water
IA) viizned roqsv
Vapor Pressure (r
triog Poiling

				10 ×10 × 10									
Absolute (800-368-1131 www.absolute	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com			v	Certified	Certified Reference Material CRM	Material	CRM				ANAB ISO 1 AR-1539 Ce https://Absolut	ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED V	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	91980 072423 Acrolein				Solvent(s): Water	<b>Lot#</b> 102422Q			Hebriel	Nellond		
	Expiration Date: Recommended Storage: Nominal Concentration (µg/mL):	082423 Refrigerate (4 °C) 5000	4 °C)		5	Zem			Formulated By:	1 Dr	Gabriel Helland	0/2423 DATE 072423	
Weight(	NIS! Lest ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot	6UTB diluted to (mL): Lot	10.0 Nominal	5E-05 0.001 Purity	Balance Uncertainly Flask Uncertainty Uncertainty	uy Target	Actual	Actual	Expanded Expanded	By: F	Colivent Safetive Info. On Attracted and	DATE	
1. Acrolein		RM# Number 5 103755R09M	Conc (µg/mL) 5000	(%)	Purity 0.5	Weight(g) 0.05160	Weight(g)	Conc (µg/ml.) 5000 2			OSHA PEL (TWA)	LD50	
<u>zz</u>	Method: GC6MSD-1. Detector: Muss Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200°C. Detector Temp. = 220°C. Analyst: Pedro Rentas. NOTB: Due to the instability of acrolein in solutions of acrolein, and any dilutions thereof, about the test immediately Long term storage is not recommended. Please contact our technical department if further information is required.	ve Detector (Scan mode, ector Temp. = 220°C. Al contact our technical de	). Column: Voo nalyst: Pedro Re partment if furth	ol (60m X ( ntas. NOT.	Context (Context), 25mm ID X 1. E: Due to the in ion is required.	5µm film thickness tability of acrole	ss). Oven Profile in in solution, all	:: Temp. 1 = 35	C (Time 1 = 1 rolein, and any	Omin.), Temp. 2-	200°C (Time 2 = 8.75 mir should be used immediate	on-rat 46mg/kg	
Abundance	TIC: [B;	TIC: [BSB2]79005.D				Abundance	31	Scan 2:	32 (8.927 r	Scan 232 (8.927 min): [BSB2]79005.D	79005.D	7	
250000	8.93					60000							
20000		1	0////			5000	0	20					
15000						4000	~						
10000						30000	6						
20002						2000	0						
00000						10000	37	~					
Time>0	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40	.00 45.00	50.00 {	55.00 60.00	ر 2~Z/ш	20 30	44 ( 40 50 60	65 75 85 <b>70 80 9</b>	85 90 100 1	119         158         169           90         100         110         120         130         140         150         170	158 169 50 160 170	
	<ul> <li>The cert</li> <li>Standarn</li> <li>Standarn</li> <li>Standarn</li> <li>Uncertai</li> <li>NIST Te</li> </ul>	<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Slandards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	tration calculat efficially using 1 % of the stated 1 pule, should be .B.N. and Kuya .Government P	ted from gr balances th value, unle stored wit it, C.E., "G rinting Off	avimetric and at are calibratu ss otherwise stu h caps tight an uidelines for E lice, Washingto	and volumetric measurements unless otherwise stated. Inrated with weights traceable to NIST (see above). se stated. It and under appropriate laboratory conditions. for Evaluating and Expressing the Uncertainty of NIST ington, DC, (1994).	arrements unles raceable to NIS riate laboratory kpressing the Ui	s otherwise star T (see above). conditions. ncertainty of N	led. IST Measurer	nent Result,"			

Printed: 7/24/2023, 4:01:48 PM

1 of 1

Lot # 072423 Part # 91980

Phone: 203-281-2917

FAX: 203-281-2922

torade Conditions	Nuos mon year quanta manistruo aso	es of ignition. No smoking. Prevent the build up of electrosts	c cuside.
recautions for safe handling	Avoid contact with skin and eyes. Av		
Section VII. HANDLING AND	3DAROTS		
dn uzəj;	Contain spillage, and then collect and place	r container for disposal according to local regulations (see se	(SF noi).
invironmental precautions	revent further leakage or spillage if safe to	o so. Do not let product enter drains.	
ersonal precautions	Wear respiratory protection. Avoid breathing gnition. Vapours accumulate to form explosi	vapors, mist or gas. Ensure adequate ventilation. Remove all e concentrations.	sources of
Section VI. ACCIDENTAL R	SERURASM SEASURES		
Azardous Decomposition produ	cets Carbon oxides		
suitable extinguishing media rotective equipment for fire	Use water spray, alcohol-resistant fo Wear self contained breathing appar	m, dry chemical or carbon dioxide. tus for fire ກິghling if necessary.	
Section V. FIREFIGHTING N	SARUSAA		
bewollswe †	Do NOT induce vomiting. Rinse mouth with		
n case of eye contact	Rinse thoroughly with plenty of water for at I		
f inhaled n case of skin contact	It inhaled, move person into fresh air. If not l Wash with soap and water. Consult a physi	reathing, give artificial respiration. Consult a physician.	
General advice	Consult a physician. Show this safety data s	neet to the doctor in attendance. Move to safe area.	
Section IV. FIRST AID MEA	SERUS		
INTENDED USE: REFEREI	CE MATERIAL		
See Certified Weight R	port For Other Analytes Prese	nt At Trace Quantities.	
Vater		CAS#: 7732-18-5	26 <
Components (Specific Chem	cal Identity; Common Name(s))		(optional) %
Section III - Composition			
oW Isngila	ЯЭрида:b		
	GHS Classification in accor tilated area wash with soap and water	ance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritation P280 Use gloves, eye protection/fac P305,351,338 If in eyes, remove contacts, rii	s sheild Se with water
Section II - Hazards Identif			
			May 1, 2022
00010017	Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	1-362-323-3600
Address	44 Rossotto Dr.	Emergency Telephone USA & CANADA	1-362-333-3600
IDENTITY ANALYTIC Manufacturer's Name	AW NI DEVLOSEID DISOLVED IN WE AND SUPADNATE STOLOSAA ABSOLUTE STOLOSAA		1-800-525-008-1
Section I Product and Con	pany identification		
	Safety Data Sheet (SDS)	InsilqmoD AH2O/2HD	

and kept upright to prevent leakage.

100°C

mqq 008 :AWT

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

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

Respiratory protection

CAS#: 7732-18-5

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Vapor Pressure (mm Hg)

Personal protective equipment

find Poind

Vater

Storage Conditions

Melting Point

Specific Gravity (H2O = 1)

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

Handle with gloves. Gloves must be inspected prior to use.

L

Eye protection.

ΨN

Completely miscible Solubility in Water (Butyl Acetate = 1) AΝ ΑN (I = AIA) (AIR = 1) Evaporation rate

0°C

Hazardous decomposition products - No data available biove of sleneteM ΑN biove of anoitiono. AN Possibility of hazardous reactions ΑN Stable under recommended storage conditions. Chemical stability Section X. STABILITY AND REACTIVITY CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

ΑN Section XI. TOXICOLOGICAL INFORMATION

Causes skin initation. LD50 Dermal - Guinea pig ΨN LC50 Inhalation - Rat ΨN LD50 Oral - Rat

Rev imitation

Section XII. ECOLOGICAL INFORMATION

Dispose with normal Laboratory Solvent Waste. Section XIII. DISPOSAL CONSIDERATIONS

Proper shipping name: Water spooß snolegnep toN (SU) TOO

Section XIV. TRANSPORT INFORMATION

ΨN

ΨN

EC<sub>20</sub>

0907

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

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. 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 PRECAUTION, As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If PRECAUTION RRY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This of the model and interact with other unbiances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC. Cannot warm of all the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC matcher and the abelic and the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC matcher and the potential dangers of the potential use of milestances. All other and the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDS INC meets and the potential use of milestances. All other and the chemical meets are so varied, ABSOLUTE STANDARDS INC meets and the label. ABSOLUTE STANDARDS INC meets and the chemical meets are so varied, ABSOLUTE STANDARDS INC meets and the chemical meets are so varied. ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDS INC meets and the label. ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDARDS INC meets are so varied. ANY the standard the standar The intomation 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. equ); 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 flobal 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 flobal Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling. The user is responsible for determining the presultions and dangers of this chemical flobal floration for the presulting constant dangers of the presulting constant dangers of the presulting constant dangers of the presulting of the appropriate application. Depending on usage, protective clothing present on any large state application. Topending on usage, protective clothing present on the present of the present on the present of the present on the present of the presen

Proper shipping name: Water

Not dangerous goods

				10 C C									
Absolute (800-368-1131 www.absolute	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com			v	Certified	Certified Reference Material CRM	Material	CRM				ANAB ISO 1 AR-1539 Ce https://Absolut	ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED W	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	91980 072423 Acrolein				Solvent(s): Water	<b>Lot#</b> 102422Q			Hebriel	Nellond		
	Expiration Date: Recommended Storage: Nominal Concentration (µg/mL);	082423 Refrigerate (4 °C) 5000	4 °C)		5	Zem			Formulated By:	1 Dr	Gabriel Helland	0/2423 DATE 072423	
Weight(	NIS! Lest ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot	6UTB diluted to (mL): Lot	10.0 Nominal	5E-05 0.001 Purity	Balance Uncertainly Flask Uncertainty Uncertainty	uy Target	Actual	Actual	Expanded Expanded	By: F	Colivent Safetive Info. On Attracted and	DATE	
1. Acrolein		RM# Number 5 103755R09M	Conc (µg/mL) 5000	(%)	Purity 0.5	Weight(g) 0.05160	Weight(g)	Conc (Jg/mL)			OSHA PEL (TWA)	LD50	
<u>r</u> rr	Method: GC6MSD-1. Detector: Muss Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200°C. Detector Temp. = 220°C. Analyst: Pedro Rentas. NOTB: Due to the instability of acrolein in solutions of acrolein, and any dilutions thereof, about the test immediately Long term storage is not recommended. Please contact our technical department if further information is required.	ve Detector (Scan mode, ector Temp. = 220°C. Al	). Column: Voo nalyst: Pedro Re partment if furth	ol (60m X ( ntas. NOT) ver informat	Context (Context), 25mm ID X 1. E: Due to the in ion is required.	5µm film thickness tability of acrole	ss). Oven Profile in in solution, all	:: Temp. 1 = 35	C (Time 1 = 1 rolein, and any	Omin.), Temp. 2-	200°C ( Time 2 = 8.75 mir should be used immediate	on-rat 46mg/kg	
Abundance	TIC: [B(	TIC: [BSB2]79005.D				Abundance	31	Scan 2:	32 (8.927 r	Scan 232 (8.927 min): [BSB2]79005.D	79005.D	٦	
250000	8.93					60000							
20000		1	0////			5000	0	20					
15000						4000	~						
10000						30000	6						
						2000	0						
00000						10000	37	~					
Time>0	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40	.00 45.00	50.00 {	55.00 60.00	0 <z )<="" ll="" td=""><td>20 30</td><td>44 (40 50 60</td><td>65 75 85 <b>70 80 9</b></td><td>85 90 100 1</td><td>119         158         169           90         100         110         120         130         140         150         170</td><td>158 169 50 160 170</td><td></td></z>	20 30	44 (40 50 60	65 75 85 <b>70 80 9</b>	85 90 100 1	119         158         169           90         100         110         120         130         140         150         170	158 169 50 160 170	
	<ul> <li>The cert</li> <li>Standart</li> <li>Standart</li> <li>Standart</li> <li>Standart</li> <li>Uncertai</li> <li>NIST Te</li> </ul>	<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Slandbards are certified (<i>A</i><sup>1,</sup>) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening anyoule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	tration calcula etrically using 1 & of the stated 1 pule, should be . B.N. and Kuya . Government P	ted from gr balances th value, unte stored wit t, C.E., "G	avimetric and at are calibrato ss otherwise stu h caps tight an uidelines for E hce, Washingto	and volumetric measurements unless otherwise stated. Inrated with weights traceable to NIST (see above), se stated. In and under appropriate laboratory conditions. In a dunder appropriate laboratory conditions. In Evaluating and Expressing the Uncertainty of NIST ington, DC, (1994).	arrements unles rraceable to NIS riate laboratory kpressing the Ui	s otherwise star T (see above). conditions. ncertainty of N	led. IST Measurer	nent Result,"			

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1 of 1

Lot # 072423 Part # 91980

Phone: 203-281-2917

FAX: 203-281-2922

torade Conditions	Nuos mon year quanta manistruo aso	es of ignition. No smoking. Prevent the build up of electrosts	c cuside.
recautions for safe handling	Avoid contact with skin and eyes. Av		
Section VII. HANDLING AND	3DAROTS		
dn uzəj;	Contain spillage, and then collect and place	r container for disposal according to local regulations (see se	(SF noi).
invironmental precautions	revent further leakage or spillage if safe to	o so. Do not let product enter drains.	
ersonal precautions	Wear respiratory protection. Avoid breathing gnition. Vapours accumulate to form explosi	vapors, mist or gas. Ensure adequate ventilation. Remove all e concentrations.	sources of
Section VI. ACCIDENTAL R	SERURASM SEASURES		
Azardous Decomposition produ	cets Carbon oxides		
suitable extinguishing media rotective equipment for fire	Use water spray, alcohol-resistant fo Wear self contained breathing appar	m, dry chemical or carbon dioxide. tus for fire ກິghling if necessary.	
Section V. FIREFIGHTING N	SARUSAA		
bewollswe †	Do NOT induce vomiting. Rinse mouth with		
n case of eye contact	Rinse thoroughly with plenty of water for at I		
f inhaled n case of skin contact	It inhaled, move person into fresh air. If not l Wash with soap and water. Consult a physi	reathing, give artificial respiration. Consult a physician.	
General advice	Consult a physician. Show this safety data s	neet to the doctor in attendance. Move to safe area.	
Section IV. FIRST AID MEA	SERUS		
INTENDED USE: REFEREI	CE MATERIAL		
See Certified Weight R	port For Other Analytes Prese	nt At Trace Quantities.	
Vater		CAS#: 7732-18-5	26 <
Components (Specific Chem	cal Identity; Common Name(s))		(optional) %
Section III - Composition			
oW Isngila	ЯЭрида:b		
	GHS Classification in accor tilated area wash with soap and water	ance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritation P280 Use gloves, eye protection/fac P305,351,338 If in eyes, remove contacts, rii	s sheild Se with water
Section II - Hazards Identif			
			May 1, 2022
00010017	Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	1-362-323-3600
Address	44 Rossotto Dr.	Emergency Telephone USA & CANADA	1-362-333-3600
IDENTITY ANALYTIC Manufacturer's Name	AW NI DEVLOSEID DISOLVED IN WE AND SUPADNATE STOLOSAA ABSOLUTE STOLOSAA		1-800-525-008-1
Section I Product and Con	pany identification		
	Safety Data Sheet (SDS)	InsilqmoD AH2O/2HD	

and kept upright to prevent leakage.

100°C

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Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

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

Respiratory protection

CAS#: 7732-18-5

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Vapor Pressure (mm Hg)

Personal protective equipment

find Poind

Vater

Storage Conditions

Melting Point

Specific Gravity (H2O = 1)

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

Handle with gloves. Gloves must be inspected prior to use.

L

Eye protection.

ΨN

Completely miscible Solubility in Water (Butyl Acetate = 1) AΝ ΑN (I = AIA) (AIR = 1) Evaporation rate

0°C

Hazardous decomposition products - No data available biove of sleneteM ΑN biove of anoitiono. AN Possibility of hazardous reactions ΑN Stable under recommended storage conditions. Chemical stability Section X. STABILITY AND REACTIVITY CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

ΑN Section XI. TOXICOLOGICAL INFORMATION

Causes skin initation. LD50 Dermal - Guinea pig ΨN LC50 Inhalation - Rat ΨN LD50 Oral - Rat

Rev imitation

Section XII. ECOLOGICAL INFORMATION

Dispose with normal Laboratory Solvent Waste. Section XIII. DISPOSAL CONSIDERATIONS

Proper shipping name: Water spooß snolegnep toN (SU) TOO

Section XIV. TRANSPORT INFORMATION

ΨN

ΨN

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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

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Proper shipping name: Water

Not dangerous goods

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Absolute (800-368-1131 www.absolute	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com			v	Certified	Certified Reference Material CRM	Material	CRM				ANAB ISO 1 AR-1539 Ce https://Absolut	ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED W	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	91980 072423 Acrolein				Solvent(s): Water	<b>Lot#</b> 102422Q			Hebriel	Nellond		
	Expiration Date: Recommended Storage: Nominal Concentration (µg/mL);	082423 Refrigerate (4 °C) 5000	4 °C)		5	Zem			Formulated By:	1 Dr	Gabriel Helland	0/2423 DATE 072423	
Weight(	Nis! lest ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot	6UTB diluted to (mL): Lot	10.0 Nominal	5E-05 0.001 Purity	Balance Uncertainly Flask Uncertainty Uncertainty	uy Target	Actual	Actual	Expanded Expanded	By: F	Colivent Safetive Info. On Attracted and	DATE	
1. Acrolein		RM# Number 5 103755R09M	Conc (µg/mL) 5000	(%)	Purity 0.5	Weight(g) 0.05160	Weight(g)	Conc (Jg/mL)			OSHA PEL (TWA)	LD50	
<u>r</u> rr	Method: GC6MSD-1. Detector: Muss Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200°C. Detector Temp. = 220°C. Analyst: Pedro Rentas. NOTB: Due to the instability of acrolein in solutions of acrolein, and any dilutions thereof, about the test immediately Long term storage is not recommended. Please contact our technical department if further information is required.	ve Detector (Scan mode, ector Temp. = 220°C. Al	). Column: Voc nalyst: Pedro Re partment if furth	ol (60m X ( ntas. NOT) ver informat	Context (1), 25mm ID X 1, E: Due to the in ion is required.	5µm film thickness tability of acrole	ss). Oven Profile in in solution, all	:: Temp. 1 = 35	C (Time 1 = 1 rolein, and any	Omin.), Temp. 2-	200°C ( Time 2 = 8.75 mir should be used immediate	on-rat 46mg/kg	
Abundance	TIC: [B(	TIC: [BSB2]79005.D				Abundance	31	Scan 2:	32 (8.927 r	Scan 232 (8.927 min): [BSB2]79005.D	79005.D	٦	
250000	8.93					60000							
20000		İ	0////			5000	0	20					
15000						4000	~						
10000						30000	6						
						2000	0						
00000						10000	37	~					
Time>0	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40	.00 45.00	50.00 {	55.00 60.00	0 <z )<="" ll="" td=""><td>20 30</td><td>44 (40 50 60</td><td>65 75 85 <b>70 80 9</b></td><td>85 90 100 1</td><td>119         158         169           90         100         110         120         130         140         150         170</td><td>158 169 50 160 170</td><td></td></z>	20 30	44 (40 50 60	65 75 85 <b>70 80 9</b>	85 90 100 1	119         158         169           90         100         110         120         130         140         150         170	158 169 50 160 170	
	<ul> <li>The cert</li> <li>Standart</li> <li>Standart</li> <li>Standart</li> <li>Standart</li> <li>Uncertai</li> <li>NIST Te</li> </ul>	<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Shandards are certified (<i>A</i><sup>1</sup>) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening anyoule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	tration calcula etrically using 1 & of the stated 1 pule, should be . B.N. and Kuya . Government P	ted from gr balances th value, unte stored wit t, C.E., "G	avimetric and at are calibrato ss otherwise stu h caps tight an uidelines for E hce, Washingto	and volumetric measurements unless otherwise stated. Inrated with weights traceable to NIST (see above), se stated. In and under appropriate laboratory conditions. for Evaluating and Expressing the Uncertainty of NIST ington, DC, (1994).	arrements unles rraceable to NIS riate laboratory kpressing the Ui	s otherwise star T (see above). conditions. ncertainty of N	led. IST Measurer	nent Result,"			

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1 of 1

Lot # 072423 Part # 91980

Phone: 203-281-2917

FAX: 203-281-2922

torade Conditions	Nuos mon year quanta nonstructo desa	es of ignition. No smoking. Prevent the build up of electrosts	c cuside.
recautions for safe handling	Avoid contact with skin and eyes. Av		
Section VII. HANDLING AND	3DAROTS		
dn uzəj;	Contain spillage, and then collect and place	r container for disposal according to local regulations (see se	(SF noi).
invironmental precautions	revent further leakage or spillage if safe to	o so. Do not let product enter drains.	
ersonal precautions	Wear respiratory protection. Avoid breathing gnition. Vapours accumulate to form explosi	vapors, mist or gas. Ensure adequate ventilation. Remove all e concentrations.	sources of
Section VI. ACCIDENTAL R	SERURASM SEASURES		
Azardous Decomposition produ	cets Carbon oxides		
suitable extinguishing media rotective equipment for fire	Use water spray, alcohol-resistant fo Wear self contained breathing appar	m, dry chemical or carbon dioxide. tus for fire ກິghting if necessary.	
Section V. FIREFIGHTING N	SARUSAA		
bewollswe †	Do NOT induce vomiting. Rinse mouth with		
n case of eye contact	Rinse thoroughly with plenty of water for at I		
f inhaled n case of skin contact	It inhaled, move person into fresh air. If not l Wash with soap and water. Consult a physi	reathing, give artificial respiration. Consult a physician.	
General advice	Consult a physician. Show this safety data s	neet to the doctor in attendance. Move to safe area.	
Section IV. FIRST AID MEA	SERUS		
INTENDED USE: REFEREI	CE MATERIAL		
See Certified Weight R	port For Other Analytes Prese	nt At Trace Quantities.	
Vater		CAS#: 7732-18-5	26 <
Components (Specific Chem	cal Identity; Common Name(s))		(optional) %
Section III - Composition			
oW Isngila	ЯЭрида:b		
	GHS Classification in accor tilated area wash with soap and water	ance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritation P280 Use gloves, eye protection/fac P305,351,338 If in eyes, remove contacts, rii	s sheild Se with water
Section II - Hazards Identif			
			May 1, 2022
00010017	Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	1-362-323-3600
Address	44 Rossotto Dr.	Emergency Telephone USA & CANADA	1-362-333-3600
IDENTITY ANALYTIC Manufacturer's Name	AW NI DEVLOSEID DISOLVED IN WE AND SUPADNATE STOLOSAA ABSOLUTE STOLOSAA		1-800-525-008-1
Section I Product and Con	pany identification		
	Safety Data Sheet (SDS)	InsilqmoD AH2O/2HD	

and kept upright to prevent leakage.

100°C

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Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

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

Respiratory protection

CAS#: 7732-18-5

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Vapor Pressure (mm Hg)

Personal protective equipment

find Poind

Vater

Storage Conditions

Melting Point

Specific Gravity (H2O = 1)

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

Handle with gloves. Gloves must be inspected prior to use.

L

Eye protection.

ΨN

Completely miscible Solubility in Water (Butyl Acetate = 1) AΝ ΑN (I = AIA) (AIR = 1) Evaporation rate

0°C

Hazardous decomposition products - No data available biove of sleneteM ΑN biove of anoitiono. AN Possibility of hazardous reactions ΑN Stable under recommended storage conditions. Chemical stability Section X. STABILITY AND REACTIVITY CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

ΑN Section XI. TOXICOLOGICAL INFORMATION

Causes skin initation. LD50 Dermal - Guinea pig ΨN LC50 Inhalation - Rat ΨN LD50 Oral - Rat

Rev imitation

Section XII. ECOLOGICAL INFORMATION

Dispose with normal Laboratory Solvent Waste. Section XIII. DISPOSAL CONSIDERATIONS

Proper shipping name: Water spooß snolegnep toN (SU) TOO

Section XIV. TRANSPORT INFORMATION

ΨN

ΨN

EC<sub>20</sub>

0907

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

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Proper shipping name: Water

Not dangerous goods

				10 C C									
Absolute (800-368-1131 www.absolute	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com			v	Certified	Certified Reference Material CRM	Material	CRM				ANAB ISO 1 AR-1539 Ce https://Absolut	ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED W	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	91980 072423 Acrolein				Solvent(s): Water	<b>Lot#</b> 102422Q			Hebriel	Nellond		
	Expiration Date: Recommended Storage: Nominal Concentration (µg/mL);	082423 Refrigerate (4 °C) 5000	4 °C)		5	Zem			Formulated By:	1 Dr	Gabriel Helland	0/2423 DATE 072423	
Weight(	Nis! lest ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot	6UTB diluted to (mL): Lot	10.0 Nominal	5E-05 0.001 Purity	Balance Uncertainly Flask Uncertainty Uncertainty	uy Target	Actual	Actual	Expanded Expanded	By: F	Colivent Safetive Info. On Attracted and	DATE	
1. Acrolein		RM# Number 5 103755R09M	Conc (µg/mL) 5000	(%)	Purity 0.5	Weight(g) 0.05160	Weight(g)	Conc (Jg/mL)			OSHA PEL (TWA)	LD50	
<u>r</u> rr	Method: GC6MSD-1. Detector: Muss Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200°C. Detector Temp. = 220°C. Analyst: Pedro Rentas. NOTE: Due to the instability of acrolein in solutions of acrolein, and any dilutions thereof, about the test immediately Long term storage is not recommended. Please contact our technical department if further information is required.	ve Detector (Scan mode, ector Temp. = 220°C. Al	). Column: Voc nalyst: Pedro Re partment if furth	ol (60m X ( :ntas. NOT ver informat	Context (1), 25mm ID X 1, E: Due to the in ion is required.	5µm film thickness tability of acrole	ss). Oven Profile in in solution, all	:: Temp. 1 = 35	C (Time 1 = 1 rolein, and any	Omin.), Temp. 2-	200°C ( Time 2 = 8.75 mir should be used immediate	on-rat 46mg/kg	
Abundance	TIC: [B(	TIC: [BSB2]79005.D				Abundance	31	Scan 2:	32 (8.927 r	Scan 232 (8.927 min): [BSB2]79005.D	79005.D	٦	
250000	8.93					60000							
20000		1	0////			5000	0	20					
15000						4000	~						
10000						30000	6						
						2000	0						
00000						10000	37	~					
Time>0	10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40	.00 45.00	50.00 {	55.00 60.00	0 <z )<="" ll="" td=""><td>20 30</td><td>44 (40 50 60</td><td>65 75 85 <b>70 80 9</b></td><td>85 90 100 1</td><td>119         158         169           90         100         110         120         130         140         150         170</td><td>158 169 50 160 170</td><td></td></z>	20 30	44 (40 50 60	65 75 85 <b>70 80 9</b>	85 90 100 1	119         158         169           90         100         110         120         130         140         150         170	158 169 50 160 170	
	<ul> <li>The cert</li> <li>Standart</li> <li>Standart</li> <li>Standart</li> <li>Standart</li> <li>Uncertai</li> <li>NIST Te</li> </ul>	<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Shandards are certified (<i>A</i><sup>1</sup>) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening anyoule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	tration calcula etrically using 1 & of the stated 1 pule, should be . B.N. and Kuya . Government P	ted from gr balances th value, unte stored wit t, C.E., "G	avimetric and at are calibrato ss otherwise stu h caps tight an uidelines for E hce, Washingto	and volumetric measurements unless otherwise stated. Inrated with weights traceable to NIST (see above), se stated. In and under appropriate laboratory conditions. for Evaluating and Expressing the Uncertainty of NIST ington, DC, (1994).	arrements unles rraceable to NIS riate laboratory kpressing the Ui	s otherwise star T (see above). conditions. ncertainty of N	led. IST Measurer	nent Result,"			

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1 of 1

Lot # 072423 Part # 91980

Phone: 203-281-2917

FAX: 203-281-2922

torade Conditions	Nuos mon year quanta manistruo aso	es of ignition. No smoking. Prevent the build up of electrosts	c cuside.
recautions for safe handling	Avoid contact with skin and eyes. Av		
Section VII. HANDLING AND	3DAROTS		
dn uzəj;	Contain spillage, and then collect and place	r container for disposal according to local regulations (see se	(SF noi).
invironmental precautions	revent further leakage or spillage if safe to	o so. Do not let product enter drains.	
ersonal precautions	Wear respiratory protection. Avoid breathing gnition. Vapours accumulate to form explosi	vapors, mist or gas. Ensure adequate ventilation. Remove all e concentrations.	sources of
Section VI. ACCIDENTAL R	SERURASM SEASURES		
Azardous Decomposition produ	cets Carbon oxides		
suitable extinguishing media rotective equipment for fire	Use water spray, alcohol-resistant fo Wear self contained breathing appar	m, dry chemical or carbon dioxide. tus for fire ກິghling if necessary.	
Section V. FIREFIGHTING N	SARUSAA		
bewollswe †	Do NOT induce vomiting. Rinse mouth with		
n case of eye contact	Rinse thoroughly with plenty of water for at I		
f inhaled n case of skin contact	It inhaled, move person into fresh air. If not l Wash with soap and water. Consult a physi	reathing, give artificial respiration. Consult a physician.	
General advice	Consult a physician. Show this safety data s	neet to the doctor in attendance. Move to safe area.	
Section IV. FIRST AID MEA	SERUS		
INTENDED USE: REFEREI	CE MATERIAL		
See Certified Weight R	port For Other Analytes Prese	nt At Trace Quantities.	
Vater		CAS#: 7732-18-5	26 <
Components (Specific Chem	cal Identity; Common Name(s))		(optional) %
Section III - Composition			
oW Isngila	ЯЭрида:b		
	GHS Classification in accor tilated area wash with soap and water	ance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritation P280 Use gloves, eye protection/fac P305,351,338 If in eyes, remove contacts, rii	s sheild Se with water
Section II - Hazards Identif			
			May 1, 2022
00010017	Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	1-362-323-3600
Address	44 Rossotto Dr.	Emergency Telephone USA & CANADA	1-362-333-3600
IDENTITY ANALYTIC Manufacturer's Name	AW NI DEVLOSEID DISOLVED IN WE AND SUPADNATE STOLOSAA ABSOLUTE STOLOSAA		1-800-525-008-1
Section I Product and Con	pany identification		
	Safety Data Sheet (SDS)	InsilqmoD AH2O/2HD	

and kept upright to prevent leakage.

100°C

mqq 008 :AWT

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

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

Respiratory protection

CAS#: 7732-18-5

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Vapor Pressure (mm Hg)

Personal protective equipment

find Poind

Vater

Storage Conditions

Melting Point

Specific Gravity (H2O = 1)

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

Handle with gloves. Gloves must be inspected prior to use.

L

Eye protection.

ΨN

Completely miscible Solubility in Water (Butyl Acetate = 1) AΝ ΑN (I = AIA) (AIR = 1) Evaporation rate

0°C

Hazardous decomposition products - No data available biove of sleneteM ΑN biove of anoitiono. AN Possibility of hazardous reactions ΑN Stable under recommended storage conditions. Chemical stability Section X. STABILITY AND REACTIVITY CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

ΑN Section XI. TOXICOLOGICAL INFORMATION

Causes skin initation. LD50 Dermal - Guinea pig ΨN LC50 Inhalation - Rat ΨN LD50 Oral - Rat

Rev imitation

Section XII. ECOLOGICAL INFORMATION

Dispose with normal Laboratory Solvent Waste. Section XIII. DISPOSAL CONSIDERATIONS

Proper shipping name: Water spooß snolegnep toN (SU) TOO

Section XIV. TRANSPORT INFORMATION

ΨN

ΨN

EC<sub>20</sub>

0907

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

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. 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 PRECAUTION, As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If PRECAUTION RRY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This of the model and interact with other unbiances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC. Cannot warm of all the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC matcher and the abelic and the potential dangers of use or interaction with other chemical meets are so varied, ABSOLUTE STANDARDS INC matcher and the potential dangers of the potential use of milestances. All other and the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDS INC meets and the potential use of milestances. All other and the chemical meets are so varied, ABSOLUTE STANDARDS INC meets and the label. ABSOLUTE STANDARDS INC meets and the chemical meets are so varied, ABSOLUTE STANDARDS INC meets and the chemical meets are so varied. ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDS INC meets and the label. ABSOLUTE STANDARDS INC meets are so varied, ABSOLUTE STANDARDARDS INC meets are so varied. ANY the standard the standar The intomation 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. equ); 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 flobal 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 flobal Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling. The user is responsible for determining the presultions and dangers of this chemical flobal floration for the presulting constant dangers of the presulting constant dangers of the presulting constant dangers of the presulting of the appropriate application. Depending on usage, protective clothing present on any large state application. Topending on usage, protective clothing present on the present of the present on the present of the present on the present of the presen

Proper shipping name: Water

Not dangerous goods

<ul> <li>The cartified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> </ul>
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1 of 1

Lot # 081524 Part # 91980

5262-182-203 :XA7 Phone: 203-281-2917

			Signal Word: DANGER	
blieds ece		P280 H315	GHS Classification in accor Use in ventilated area If on skin, wash with soap and water	P271 P271 S22,332
			ards Identification	Section II - Haz
January 1, 202	Prepared/barad	Date	Hamden CT, 06514	
1-325-353-320(	gency Telephone International	Emei	44 Rossotto Dr.	Address
1-800-232-2023	ADANAD & ASU enorgelat yoneg	īəm∃	ONI SOFIADNATS STUJOSBA 9msV	Manufacturer's I
		RER	AW NI DEVJOSSID DRADNATS JADITYJANA	ΙΔΕΝΤΙΤΥ
			st and Company Identification	Section I Produ

Section IV. FIRST AID MEASURES INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities. CAS#: 7732-18-5 Water Components (Specific Chemical Identity; Common Name(s))

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Suitable extinguishing media Section V. FIREFIGHTING MEASURES Do NOT induce vomiting. Rinse mouth with water. Consult a physician. If swallowed

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.

SEREASE MERSURATION SERVICES	Section VI. ACCIDENTAL R
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of	Personal precautions
ignition. Vapours accumulate to form explosive concentrations.	anoituesena letaomoniva3

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

and kept upright to prevent leakage.

Wash with soap and water. Consult a physician.

SE MEASURES	Section VI. ACCIDENTAL RELEA
Carbon oxides	Hazardous Decomposition products

Section VI ACCIDENTAL BELEV	SE MEASUBES
Hazardous Decomposition products	Carbon oxides
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.
ອາດອາເມ ຄົບແບຍາກຄົບສາຂອ ອາດສາເກດ	

SE MEASURES
Carbon oxides
Wear self contained breathing apparatus for fire fighting if necessary.
D A

Section VI. ACCIDENTAL RELEA	SEMEASURES
Hazardous Decomposition products	Carbon oxides

RELEASE MEASURE SARANS SAR	Section VI. ACCIDENTAL
30 pomilo nome a pointerinary dramada anna anna teira, annay arithard hiny a ceireatar antarinar and t	
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of	Personal precautions
Znoitstraanga avizolgza mot ot atslumuose zuiges/ goitigoi	

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).	Clean up
Prevent further leakage or spillage it safe to do so. Do not let product enter disins.	Environmental precautions
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

sction VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION			
	mqq 008 :AWT	6-81-3677 :#8AO	Water
Eye protection.	Handle with gloves. Gloves must be inspected prior to use.	Respiratory protection	Personal protective equipment

Page 1 of 2

	Melting Point		Vapor Pressure (mm Hg)
L	Specific Gravity (H2O = 1)	J.001	Boiling Point
		SOITS	Section IX - PHYSICAL/CHEMICAL CHEMICAL
Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.			

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

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

Storage Conditions

Precautions for safe handling

Section VII. HANDLING AND STORAGE

Section III - Composition

In case of eye contact

In case of skin contact

belshni ti

General advice

74 00 23

26 < (lbnoitqo) %

GHS/OSHA Compliant

Safety Data Sheet (SDS)

ater noiteronev-	 	
	AN	

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	AN		(1 = AIA) vitianed rotativ
0.0		ΑN		

Stable under recommended storage conditions. Section X. STABILITY AND REACTIVITY

Appearance and Odor

Possibility of hazardous reactions

biovs of slenstel

**Conditions to avoid** 

Chemical stability

ອເດເວຍແມ່ ໃນອາອາດີເມດດ

ΑN ΨN

ΑN

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

ΨN

LC50 Inhalation - Rat LD50 Oral - Rat ΨN

Section XI. TOXICOLOGICAL INFORMATION

Hazardous decomposition products - No data available

Eye imtation Causes skin imitation. ¥Ν LD50 Dermal - Guinea pig ΨN

Section XIII. DISPOSAL CONSIDERATIONS

ΨN

CC60 Section XII. ECOLOGICAL INFORMATION

Section XIV. TRANSPORT INFORMATION Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOA

EC50

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

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. 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 astery information becomes available, Absolute Standards inc. will periodically revise this Material Safety Data Sheet. If 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 ct. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate prestruionary handling of the material by trained personnel, or supervised by a person trained in chemical field part and regulations promulgated thereunder (29 CFR 1910.1200 ct.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate prestruionary handling of the material by trained personnel, or supervised by a person trained in chemical field interface and field in the prestruing the prestruions and dangers of this chemical for has on the particulate application. Depending on usage, protective controls and dangers of this chemical for has on the particulate application. Depending on usage, protective controls and tangers of this chemical for has on the praticulate application. Depending on target, protective chemical to the protective control adverse field the field in the prestruiced on the particulation and tangers of the chemical vapors/tumes. Exposure to this protective care to any other adverse the other approximeted the protective of the chemical vapors of the chemical vapors of the protective of the protective of the chemical vapors of the protective of the chemical vapors of the protective of the chemical vapors of the protective of the protective of the chemical vapors of the protective of the protective of the chemical vapors of the protective of

Proper shipping name: Water

Not dangerous goods

<ul> <li>The cartified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> </ul>
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1 of 1

Lot # 081524 Part # 91980

5262-182-203 :XA7 Phone: 203-281-2917

			Signal Word: DANGER	
blieds ece		P280 H315	GHS Classification in accor Use in ventilated area If on skin, wash with soap and water	P271 P271 S22,332
			ards Identification	Section II - Haz
January 1, 202	Prepared/barad	Date	Hamden CT, 06514	
1-325-353-320(	gency Telephone International	Emei	44 Rossotto Dr.	Address
1-800-232-2023	ADANAD & ASU enorgelat yoneg	īəm∃	ONI SOFIADNATS STUJOSBA 9msV	Manufacturer's I
		RER	AW NI DEVJOSSID DRADNATS JADITYJANA	ΙΔΕΝΤΙΤΥ
			st and Company Identification	Section I Produ

Section IV. FIRST AID MEASURES INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities. CAS#: 7732-18-5 Water Components (Specific Chemical Identity; Common Name(s))

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Suitable extinguishing media Section V. FIREFIGHTING MEASURES Do NOT induce vomiting. Rinse mouth with water. Consult a physician. If swallowed

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.

SEREASE MERSURATION SERVICES	Section VI. ACCIDENTAL R
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of	Personal precautions
ignition. Vapours accumulate to form explosive concentrations.	anoituesena letaomoniva3

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

and kept upright to prevent leakage.

Wash with soap and water. Consult a physician.

SE MEASURES	Section VI. ACCIDENTAL RELEA
Carbon oxides	Hazardous Decomposition products

Section VI ACCIDENTAL BELEV	SE MEASUBES
Hazardous Decomposition products	Carbon oxides
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.
ອາດອາເມ ຄົບແບຍາກຄົບສາຂອ ອາດສາເກດ	

SE MEASURES
Carbon oxides
Wear self contained breathing apparatus for fire fighting if necessary.
D A

Section VI. ACCIDENTAL RELEA	SEMEASURES
Hazardous Decomposition products	Carbon oxides

RELEASE MEASURE SARANS SAR	Section VI. ACCIDENTAL
30 pomilo nome a pointerinary dramada anna anna teira, annay arithard hiny a ceireatar antarinar and t	
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of	Personal precautions
Znoitstraanga avizolgza mot ot atslumuose zuiges/ goitigoi	

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).	Clean up
Prevent further leakage or spillage it safe to do so. Do not let product enter disins.	Environmental precautions
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

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION			
	mqq 008 :AWT	6-81-3677 :#8AO	Water
Eye protection.	Handle with gloves. Gloves must be inspected prior to use.	Respiratory protection	Personal protective equipment

Page 1 of 2

	Melting Point		Vapor Pressure (mm Hg)
L	Specific Gravity (H2O = 1)	J.001	Boiling Point
		SOITS	Section IX - PHYSICAL/CHEMICAL CHEMICAL
Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.			

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

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

Storage Conditions

Precautions for safe handling

Section VII. HANDLING AND STORAGE

Section III - Composition

In case of eye contact

In case of skin contact

belshni ti

General advice

74 00 23

26 < (lbnoitqo) %

GHS/OSHA Compliant

Safety Data Sheet (SDS)

ater noiteronev-	 	
	AN	

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	AN		(1 = AIA) vitianed rotativ
0.0		ΑN		

Stable under recommended storage conditions. Section X. STABILITY AND REACTIVITY

Appearance and Odor

Possibility of hazardous reactions

biovs of slenstel

**Conditions to avoid** 

Chemical stability

ອເດເວຍແມ່ ໃນອາອາດີເມດດ

ΑN ΨN

ΑN

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

ΨN

LC50 Inhalation - Rat LD50 Oral - Rat ΨN

Section XI. TOXICOLOGICAL INFORMATION

Hazardous decomposition products - No data available

Eye imtation Causes skin imitation. ΨN LD50 Dermal - Guinea pig ΨN

Section XIII. DISPOSAL CONSIDERATIONS

ΨN

CC60 Section XII. ECOLOGICAL INFORMATION

Section XIV. TRANSPORT INFORMATION Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOA

EC50

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

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. 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 astery information becomes available, Absolute Standards inc. will periodically revise this Material Safety Data Sheet. If 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 ct. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate prestruionary handling of the material by trained personnel, or supervised by a person trained in chemical field part and regulations promulgated thereunder (29 CFR 1910.1200 ct.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate prestruionary handling of the material by trained personnel, or supervised by a person trained in chemical field interface and field in the prestruing the prestruions and dangers of this chemical for has on the particulate application. Depending on usage, protective controls and dangers of this chemical for has on the particulate application. Depending on usage, protective controls and tangers of this chemical for has on the praticulate application. Depending on target, protective chemical to the protective control adverse field the field in the prestruiced on the particulation and tangers of the chemical vapors/tumes. Exposure to this protective care to any other adverse the other approximeted the protective of the chemical vapors of the chemical vapors of the protective of the protective of the chemical vapors of the protective of the chemical vapors of the protective of the chemical vapors of the protective of the protective of the chemical vapors of the protective of the protective of the chemical vapors of the protective of

Proper shipping name: Water

Not dangerous goods

<ul> <li>The cartified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> </ul>
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1 of 1

Lot # 081524 Part # 91980

5262-182-203 :XA7 Phone: 203-281-2917

			Signal Word: DANGER	
blieds ece		P280 H315	GHS Classification in accor Use in ventilated area If on skin, wash with soap and water	P271 P271 S22,332
			ards Identification	Section II - Haz
January 1, 202	Prepared/barad	Date	Hamden CT, 06514	
1-325-353-320(	gency Telephone International	Emei	44 Rossotto Dr.	Address
1-800-232-2023	ADANAD & ASU enorgelat yoneg	īəm∃	ONI SOFIADNATS STUJOSBA 9msV	Manufacturer's I
		RER	AW NI DEVJOSSID DRADNATS JADITYJANA	ΙΔΕΝΤΙΤΥ
			st and Company Identification	Section I Produ

Section IV. FIRST AID MEASURES INTENDED USE: REFERENCE MATERIAL See Certified Weight Report For Other Analytes Present At Trace Quantities. CAS#: 7732-18-5 Water Components (Specific Chemical Identity; Common Name(s))

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Suitable extinguishing media Section V. FIREFIGHTING MEASURES Do NOT induce vomiting. Rinse mouth with water. Consult a physician. If swallowed

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.

SEREASE MERSURATION SERVICES	Section VI. ACCIDENTAL R
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of	Personal precautions
ignition. Vapours accumulate to form explosive concentrations.	anoituesena letaomoniva3

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

and kept upright to prevent leakage.

Wash with soap and water. Consult a physician.

SE MEASURES	Section VI. ACCIDENTAL RELEA
Carbon oxides	Hazardous Decomposition products

Section VI ACCIDENTAL BELEV	SE MEASUBES
Hazardous Decomposition products	Carbon oxides
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.
ອາດອາເມ ຄົບແບຍາກຄົບສາຂອ ອາດສາເກດ	

SE MEASURES
Carbon oxides
Wear self contained breathing apparatus for fire fighting if necessary.
D A

Section VI. ACCIDENTAL RELEA	SEMEASURES
Hazardous Decomposition products	Carbon oxides

RELEASE MEASURE SARANS SAR	Section VI. ACCIDENTAL
30 pomilo nome a pointerinary dramada anna anna teira, annay arithard hiny a ceireatar antarinar and t	
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of	Personal precautions
Znoitstraanga avizolgza mot ot atslumuose zuiges/ goitigoi	

Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).	Clean up
Prevent further leakage or spillage it safe to do so. Do not let product enter disins.	Environmental precautions
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

	L PROTECTION	ANO2R34/2JORTNO3	Section VIII. EXPOSURE
	mqq 008 :AWT	6-81-3677 :#8AO	Water
Eye protection.	Handle with gloves. Gloves must be inspected prior to use.	Respiratory protection	Personal protective equipment

Page 1 of 2

	Melting Point		Vapor Pressure (mm Hg)
L	Specific Gravity (H2O = 1)	J.001	Boiling Point
		SOITS	Section IX - PHYSICAL/CHEMICAL CHEMICAL
	g the product.	ynibner têfter handling	Avoid contact with skin, eyes and clothing. Wash hands thorou

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

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

Storage Conditions

Precautions for safe handling

Section VII. HANDLING AND STORAGE

Section III - Composition

In case of eye contact

In case of skin contact

belshni ti

General advice

74 00 23

26 < (lbnoitqo) %

GHS/OSHA Compliant

Safety Data Sheet (SDS)

ater noiteronev-	 	
	AN	

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	AN		(1 = AIA) vitianed rotativ
0.0		ΑN		

Stable under recommended storage conditions. Section X. STABILITY AND REACTIVITY

Appearance and Odor

Possibility of hazardous reactions

biovs of slenstel

**Conditions to avoid** 

Chemical stability

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ΑN ΨN

ΑN

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

ΨN

LC50 Inhalation - Rat LD50 Oral - Rat ΨN

Section XI. TOXICOLOGICAL INFORMATION

Hazardous decomposition products - No data available

Eye imtation Causes skin imitation. ΨN LD50 Dermal - Guinea pig ΨN

Section XIII. DISPOSAL CONSIDERATIONS

ΨN

CC60 Section XII. ECOLOGICAL INFORMATION

Section XIV. TRANSPORT INFORMATION Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOA

EC50

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

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. 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 astery information becomes available, Absolute Standards inc. will periodically revise this Material Safety Data Sheet. If 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 ct. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate prestruionary handling of the material by trained personnel, or supervised by a person trained in chemical field part and regulations promulgated thereunder (29 CFR 1910.1200 ct.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate prestruionary handling of the material by trained personnel, or supervised by a person trained in chemical field interface and field in the prestruing the prestruions and dangers of this chemical for has on the particulate application. Depending on usage, protective controls and dangers of this chemical for has on the particulate application. Depending on usage, protective controls and tangers of this chemical for has on the praticulate application. Depending on target, protective chemical to the protective control adverse field the field in the prestruiced on the particulation and tangers of the chemical vapors/tumes. Exposure to this protective care to any other adverse the other approximeted the protective of the chemical vapors of the chemical vapors of the protective of the protective of the chemical vapors of the protective of the chemical vapors of the protective of the chemical vapors of the protective of the protective of the chemical vapors of the protective of the protective of the chemical vapors of the protective of

Proper shipping name: Water

Not dangerous goods

• The ce • Standa • Standa • All Sta • Uncert NIST	1002 022 021 001	192000 -	Abordance	1. 2-Chloroethyl vinyl ether     74     MKCD0033     10000     99       Method:     GC6MSD-1 M. Detector:     MSD. Column: (60m X 0.25mm X 1.5 μm).       Injector B Temp.=     200°C, Detector B Temp.=     220°C. Analyst: Candice Warren.	Compound       2-Onloree         Expiration Date:       121324         Recommended Storage:       Refrigeration         Nominal Concentration (µg/mL):       10000         NIST Test ID#:       6UTB         Weight(s) shown below were combined and diluted to (mL):         Compound       RM#	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com
tified value is the concentration calcula rds are prepared gravimetrically using l rds are certified (+/-) 0.5% of the stated indards, after opening ampule, should anards, after preming ampule, should anards, after preming angule, should anards, after preming angule, and Kuya lichnical Note 1297, U.S. Government I	30.00 40.00 4500	20	Caltas	74         MKCD0033         10000           0. Column: (60m X 0.25mm X 1.         1.           mp. = 220°C. Analyst: Candice W	2-chioroenry vinyi emer 121324 Refrigerate (4 °C) 10000 6UTB nd diluted to (mL): 30.0 Nominal RM# Lot Number Conc (vg/mL)	95318 121321	*
<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+1) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening annpule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	24000 22000 22000 18000 16000 100000 100000 10000 10000 10000 10000 10000 10000 10000	30000 - 28000 -	Abundance	99 0.2 0.30320 0.30411 5 μm). Oven Profile: Temp 1 = 35°C (Time 1: Varren.	5E-05 Balance Uncertainty 0.0003 Flask Uncertainty Purity Uncertainty Target Actual ) (%) Purity Weight (g) Weight (g)	<b>Solvent(s): Lot</b> # Methanol EA899-US	Certified Reference Material
less otherwise stated. NST (see above). Pry conditions. 2 Uncertainty of NIST Measurement Result,"	10       10         10       10	3	Szan 1639 (27,834 mm): 95318.0 43	10030.2 40.7 110-75-8 =10min.), Temp 2 = 200°C (Time 2=8.75 m	Formulated By: Benson C Formulated By: Pedro L. F Reviewed By: Pedro L. F Expanded SDS Info Actual Uncertainty (Solvent Safety Inf Conc(ug/mL) (++) (ug/mL) CAS# 05HA P	S.	al CRM
				n-ra	121321       han     DATE       han     DATE       121321       Instantion       o. On Attached pg.)       L (TWA)		ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

1 of 1

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• The ce • Standa • Standa • All Sta • Uncert NIST	1002 022 021 001	192000 -	Abordance	1. 2-Chloroethyl vinyl ether     74     MKCD0033     10000     99       Method:     GC6MSD-1 M. Detector:     MSD. Column: (60m X 0.25mm X 1.5 μm).       Injector B Temp.=     200°C, Detector B Temp.=     220°C. Analyst: Candice Warren.	Compound       2-Onloree         Expiration Date:       121324         Recommended Storage:       Refrigeration         Nominal Concentration (µg/mL):       10000         NIST Test ID#:       6UTB         Weight(s) shown below were combined and diluted to (mL):         Compound       RM#	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com
tified value is the concentration calcula rds are prepared gravimetrically using l rds are certified (+/-) 0.5% of the stated indards, after opening ampule, should anards, after preming ampule, should anards, after preming angule, should anards, after preming angule, and Kuya lichnical Note 1297, U.S. Government I	30.00 40.00 4500	20	Caltas	74         MKCD0033         10000           0. Column: (60m X 0.25mm X 1.         1.           mp. = 220°C. Analyst: Candice W	2-chioroenry vinyi emer 121324 Refrigerate (4 °C) 10000 6UTB nd diluted to (mL): 30.0 Nominal RM# Lot Number Conc (vg/mL)	95318 121321	*
<ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+1) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening annpule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>	24000 22000 22000 18000 16000 100000 100000 10000 10000 10000 10000 10000 10000 10000	30000 - 28000 -	Abundance	99 0.2 0.30320 0.30411 5 μm). Oven Profile: Temp 1 = 35°C (Time 1: Varren.	5E-05 Balance Uncertainty 0.0003 Flask Uncertainty Purity Uncertainty Target Actual ) (%) Purity Weight (g) Weight (g)	<b>Solvent(s): Lot</b> # Methanol EA899-US	Certified Reference Material
less otherwise stated. NST (see above). Pry conditions. 2 Uncertainty of NIST Measurement Result,"	10       10         10       10	3	Szan 1639 (27,834 mm): 95318.0 43	10030.2 40.7 110-75-8 =10min.), Temp 2 = 200°C (Time 2=8.75 m	Formulated By: Benson C Formulated By: Pedro L. F Reviewed By: Pedro L. F Expanded SDS Info Actual Uncertainty (Solvent Safety Inf Conc(ug/mL) (++) (ug/mL) CAS# 05HA P	S.	al CRM
				n-ra	121321       han     DATE       han     DATE       121321       Instantion       o. On Attached pg.)       L (TWA)		ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

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# **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**



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

www.restek.com



#### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE. This Reference Material is intended for Laboratory Use Only as a standard for

the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. :	30470	Lot No.:	A0181905		
Description :	tert-Butanol Standard				
	tert-Butanol Std 50,000µg/mL, P&T Methanol, 1mL/ampul				
Container Size :	2 mL	Pkg Amt:	> 1 mL		
Expiration Date :	February 28, 2025	Storage:	0°C or colder		
		Ship:	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 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:

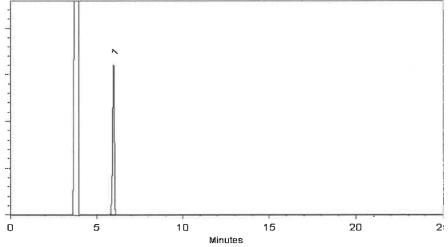
 200°C

 Det. Temp:

 250°C

 Det. Type:

 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.

offen Julli

John Friedline - Operations Technician I

Date Mixed: 16-Feb-2022

022 Balance: B442140311



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 <u>www.restek.com/Contact-Us</u>.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

#### Manufacturing Notes:

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

#### Handling Notes:

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



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

www.restek.com

## **CERTIFIED REFERENCE MATERIAL**



# **Certificate of Analysis**

chromatographic plus



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

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

#### CERTIFIED VALUES

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

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

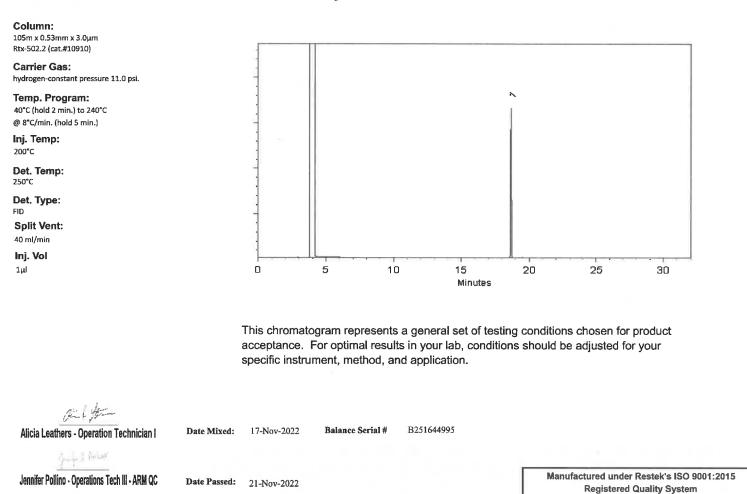
 Solvent:
 P&T Methanol

 CAS #
 67-56-1

 Purity
 99%



### **Quality Confirmation Test**





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.





www.restek.com

#### **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**

chromatographic plus



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

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

Catalog No. :	30225	Lot No.: A0193071			
Description :	Bromochloromethane Standard				
	Bromochloromethane 2000µg/m	L, P&T Methanol, 1mL	./ampul		
Container Size :	2 mL	Pkg Amt:	> 1 mL		
Expiration Date :	December 31, 2027	Storage:	0°C or colder		
		Ship:	Ambient		

#### CERTIFIED VALUES

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

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

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



#### **Quality Confirmation Test**





#### **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:

	le 🖕 a Marinan Marina de La Constante Marina de La Constante de Constante de Carlos de Constante de C	
$U_{combined uncertainty} = k$	$u^{4} + u^{2} + u^{2}$	
COMPONING CHECKING	gravimetric homogeneity "storage stability "shipping stability	
o sen di an la Dimeni da dei ana las per	. 2011년 1월 19일 - 19일 - 19일 - 19g - 19	

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

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

#### Manufacturing Notes:

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

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





www.restek.com

#### **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**

chromatographic plus



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

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

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

#### CERTIFIED VALUES

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

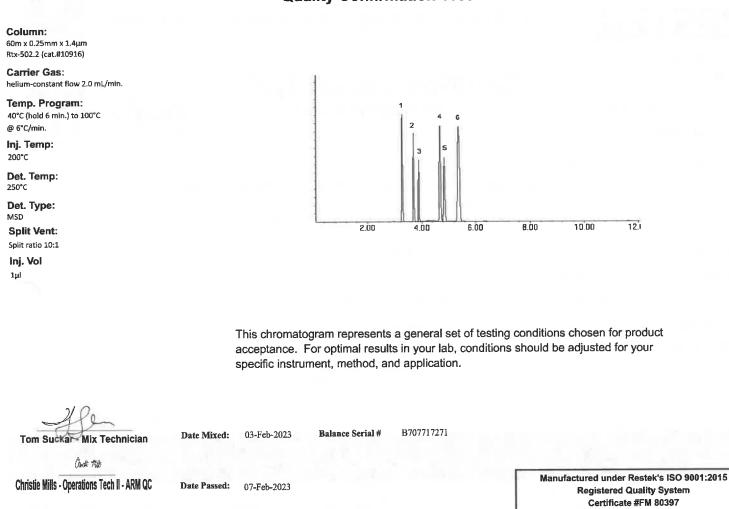
\* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Purity 99%



#### **Quality Confirmation Test**



#### Expiration Notes:

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

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





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#### **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**

chromatographic plus



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

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

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

#### CERTIFIED VALUES

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

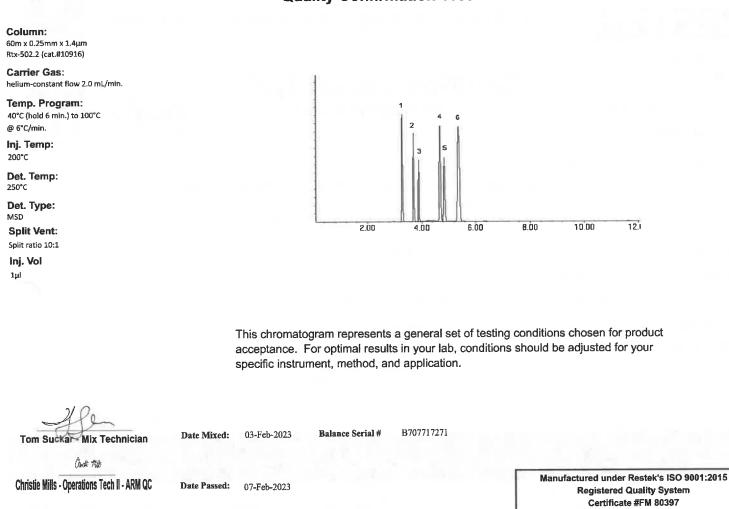
\* Expanded Uncertainty displayed in same units as Grav. Conc.

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

Purity 99%



#### **Quality Confirmation Test**



#### Expiration Notes:

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

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

## **Certificate of Analysis**

chromatographic plus







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

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

Catalog No. :	30489	Lot No.:	A0196115
Description :	8260B Acetates Mix		
	8260B Acetates Mix 2,000 µg/mL, Pa	&T Methanol, 1mL	/ampul
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	September 30, 2024	Storage:	-20°C or colder
Handling:	This product is photosensitive.	Ship:	On Ice

#### CERTIFIED VALUES

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

\* 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**

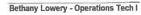
Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type: FID Split Vent: 40 ml/min Inj. Vol 1μΙ This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your

specific instrument, method, and application.

Balance Serial #

B251644995

Belling Hours



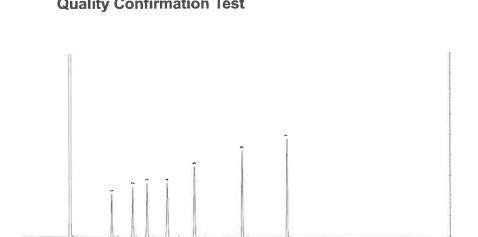
John Jidgett John Lidgett - AD Chemist

Date Passed: 29-Mar-2023

21-Mar-2023

Date Mixed:

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





#### Expiration Notes:

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

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



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#### **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**

chromatographic plus







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

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

Catalog No. :	30489	Lot No.:	A0196115
Description :	8260B Acetates Mix		
	8260B Acetates Mix 2,000 µg/mL, Pa	&T Methanol, 1mL	/ampul
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	September 30, 2024	Storage:	-20°C or colder
Handling:	This product is photosensitive.	Ship:	On Ice

#### CERTIFIED VALUES

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

\* 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**

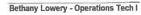
Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type: FID Split Vent: 40 ml/min Inj. Vol 1μΙ This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your

specific instrument, method, and application.

Balance Serial #

B251644995

Belling Hours



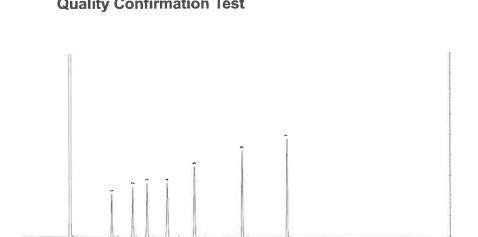
John Jidgett John Lidgett - AD Chemist

Date Passed: 29-Mar-2023

21-Mar-2023

Date Mixed:

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





#### Expiration Notes:

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

#### **Purity Notes:**

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

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

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

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

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

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

#### **Manufacturing Notes:**

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

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



ISO/IEC 17 025 Acared Testing Laboratory Certificate #3222.02

# **Certificate of Analysis**

gravimetric

#### 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 I 1mL/ampul	Mix 25,000µg/mL, P&T M	ethanol,		
Container Size :	2 mL	Pkg Amt:	> 1 mL		
Expiration Date :	April 30, 2026	Storage:	10°C or colder		
		Ship:	Ambient		

#### CERTIFIED VALUES

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

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

Darker 7. Bu

Date Mixed:

Balance: 1127510105

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

Russ Bookhamer - Operations Technician I

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11-Apr-2023



#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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:

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

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

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

#### **Manufacturing Notes:**

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

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

# **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 1mL/ampul	/mL, P&T Methanol/W	ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	November 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%	5,018.5 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

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

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

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

## **Quality Confirmation Test**



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

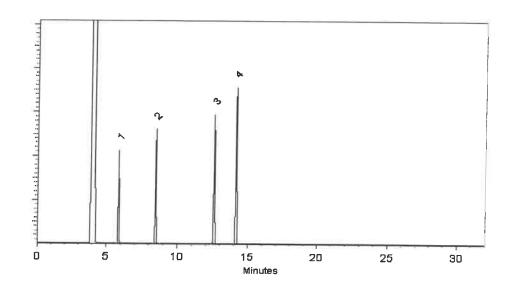
Det. Temp: 250°C

Det. Type: FID

Split Vent: 40 ml/min

lnj. Vol

1µ!



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 in

Laith Clemente - Operations Technician I

Date Mixed: 09-Aug-2023

Balance Serial # B707717271

Mandatas

Marlina Cowan - Operations Tech II ARM QC

Date Passed: 16-Aug-2023

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

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

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

# **Certificate of Analysis**

chromatographic plus





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

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

Catalog No. :	30006	Lot No.:	A0200785	
Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000µg 1mL/ampul	/mL, P&T Methanol/W	ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	November 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%	5,018.5 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

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

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

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

## **Quality Confirmation Test**



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

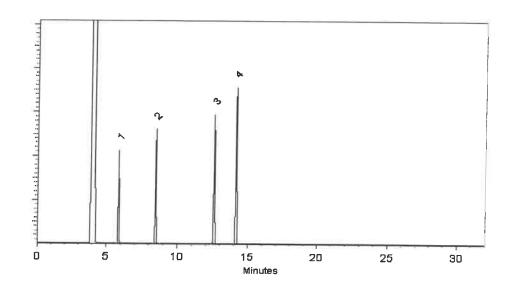
Det. Temp: 250°C

Det. Type: FID

Split Vent: 40 ml/min

lnj. Vol

1µ!



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 in

Laith Clemente - Operations Technician I

Date Mixed: 09-Aug-2023

Balance Serial # B707717271

Mandatas

Marlina Cowan - Operations Tech II ARM QC

Date Passed: 16-Aug-2023

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

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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

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

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

#### Manufacturing Notes:

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

#### 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.

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www.restek.com

#### **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**

chromatographic plus





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

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

Catalog No. :	30006	Lot No.:	A0200785	
Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000µg 1mL/ampul	/mL, P&T Methanol/W	ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	November 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%	5,018.5 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

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

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

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

## **Quality Confirmation Test**



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

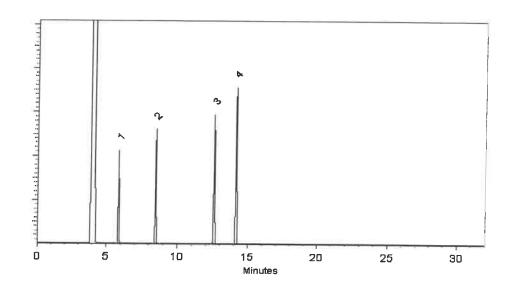
Det. Temp: 250°C

Det. Type: FID

Split Vent: 40 ml/min

lnj. Vol

1µ!



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 in

Laith Clemente - Operations Technician I

Date Mixed: 09-Aug-2023

Balance Serial # B707717271

Mandatas

Marlina Cowan - Operations Tech II ARM QC

Date Passed: 16-Aug-2023

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

#### **Expiration Notes:**

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

#### **Purity Notes:**

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

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

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

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.

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#### **CERTIFIED REFERENCE MATERIAL**

12



chromatographic



CEMRA ISOM



#### 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 Meth	aanol, 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.

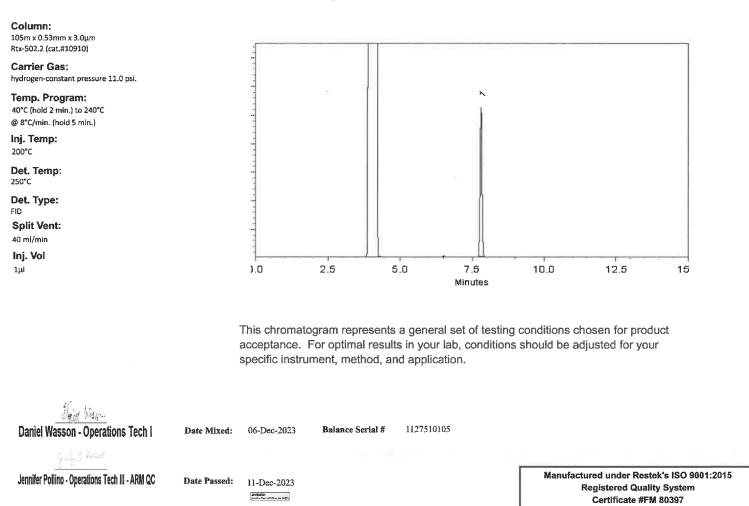
Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

#### 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**





#### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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• 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
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#### **CERTIFIED REFERENCE MATERIAL**

12



chromatographic



CEMRA ISOM



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Catalog No. :	555408-SL	Lot No.:	A0205179
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	Custom Vinyl Acetate Standard 8	,000µg/mL, P&T Meth	nanol, 1mL/ampul
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	June 30, 2025	Storage:	-20°Ç 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)
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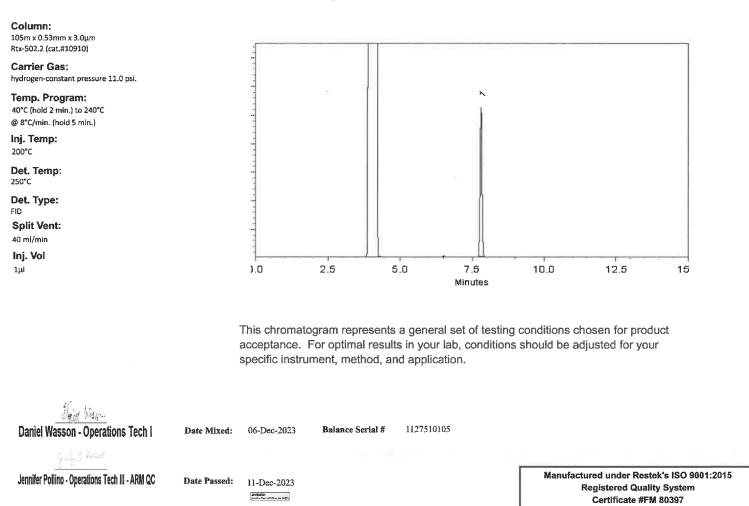
Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

#### Tech Tips:

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  which includes complete instructions.
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**CERTIFIED REFERENCE MATERIAL** 

**Certificate of Analysis** 

gravimetric





www.restek.com

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

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	נוים להמוומואם מנותיחו להמונוומואם הבובוווווומוחיו חו נוום מומואבו(א) וואפחי	ui ui iile ailaiyie(s) iisieu.
Catalog No. :	555581 Lot No.: A0210184	84
Description :	Custom 8260 Internal Standard Mix	
	Custom 8260 Internal Standard Mix 25,000µg/mL, P&T Methanol, 1mL/ampul	0,
<b>Container Size :</b>	2 mL Pkg Amt: > 1 mL	
Expiration Date :	April 30, 2027 Storage: 10°C or colder	r colder

VALUES CERTIFIED

Ship: Ambient

Componen t#	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)		Expanded Uncertainty * (95% C.L.; K=2)	led nty * ; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1 PR-30447	PR-30447	666	99% 25,212.0 μg/mL		+/- 1,427.8857	7.8857
2	1,4-Difluorobenzene	540-36-3	MKCS8657	%66	99% 25,220.0 μg/mL		+/- 1,428.3388	8,3388
m	Chlorobenzene-d5	3114-55-4 PR-31132	PR-31132	%66	99% 25,116.0 μg/mL	L	+/- 1,422.4487	2.4487
4	Pentafluorobenzene	363-72-4	MKCR9383	666	99% 25,180.0 μg/mL	5	+/- 1,426.0734	6.0734
Solvent:	P&T Methanol CAS # 67-56-1 Purity 99%							

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397 HAR SA MY WART IN COMPANYING TO 1127510105 Balance: 11-Apr-2024 Date Mixed: John Friedline - Operations Technician I Mr. J. Ili



# Expiration Notes:

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

# **Purity Notes:**

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# Certified Uncertainty Value Notes: • The uncertainties are determined i

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$$U_{comblined}$$
 uncertainty  $=k \sqrt{u_{s}^2}$ urimetric $+u_{homogeneity}^2 + u_{storage}^2$  stability $+u_{shipping}^2$  stability

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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 •

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

Avantor



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

# Certificate of Analysis

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

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

James Techie

Jamie Ethier Vice President Global Quality

Avantor



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

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Avantor



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