

Prep Standard - Chemical Standard Summary

Order ID : P3609

Test : VOCMS Group6

Prepbatch ID :

Sequence ID/Qc Batch ID: VN081424,

Standard ID :

VP126666,VP128290,VP128298,VP128523,VP128632,VP128634,VP128762,VP128764,VP128765,VP128766,VP128768, VP128769,VP129196,VP129228,VP129230,VP129231,VP129232,VP129235,VP129236,VP129238,VP129517,VP129519, VP129520,VP129723,VP129724,VP129725,VP129726,VP129727,VP129728,VP129729,VP129730,VP129731,

Chemical ID :

V12794,V12798,V12966,V13390,V13444,V13448,V13462,V13463,V13539,V13581,V13707,V13708,V13800,V13801,V1381 2,V13952,V13953,V13959,V14016,V14017,V14093,V14103,V14104,V14123,V14141,V14142,V14143,V14147,V14148,V14 169,V14170,V14177,V14202,V14207,V14219,V14288,V14411,V14412,V14413,V14414,V14415,W3112,



Recipe ID 617	<u>NAME</u> 8260 Surrogate, 400PPM	<u>NO.</u> VP126666	Prep Date 03/19/2024	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 03/28/2024
FROM	0.80000ml of V13708 + 49.20000ml	⊔ of V14141 =	Final Quanti	ty: 50.000 ml				

<u>Recipe</u> <u>ID</u> 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	PipettelD None	Supervised By Mahesh Dadoda 06/12/2024
FROM	0.25000ml of V13390 + 24.75000ml o	of V14148 =	= Final Quanti	ty: 25.000 ml	rearyurt			00/12/2024



Recipe ID 247	NAME 8260 Internal Standard, 250PPM	<u>NO.</u> VP128298	Prep Date 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	0.10000ml of V14288 + 9.90000ml of	I f V14148 =	Final Quantity	r: 10.000 ml				

Recipe ID 251	NAME 8260 Internal STD & Surrogate Mix, 250PPM	<u>NO.</u> VP128523	<u>Prep Date</u> 06/10/2024	Expiration Date 12/10/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 06/22/2024
FROM	0.25000ml of V13707 + 0.25000ml of	 f V14288 + 2	24.50000ml of	f V14142 = Fin		000 ml		00/22/2024



<u>Recipe</u> <u>ID</u> 1817	NAME 8260 Working Std(2-CVE)-SS, 800ppm	<u>NO.</u> VP128632	Prep Date 06/25/2024	Expiration Date 12/11/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/02/2024
FROM	0.80000ml of V13581 + 9.20000ml of	f V14147 =	Final Quantity	/: 10.000 ml				

<u>Recipe</u> <u>ID</u> 1818	NAME 8260 Working Std(2-CVE)-SS, 50ppm	<u>NO.</u> VP128634	<u>Prep Date</u> 06/25/2024	Expiration Date 12/11/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 07/02/2024
FROM	4.68750ml of V14147 + 0.31250ml of	VP128632	I = Final Quar	ntity: 5.000 ml	rearyurt			01102/2024



Recipe ID 1810	NAME 8260 Working Std(2-CVE)-800ppm	<u>NO.</u> VP128762	Prep Date 07/01/2024	Expiration Date 12/11/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/02/2024
FROM	0.50000ml of V12798 + 1.50000ml of	f V12794 + 2	23.00000ml of	V14147 = Fin		000 ml		

<u>Recipe</u> <u>ID</u> 1812	NAME 8260 Working Std(2-CVE)-100ppm	<u>NO.</u> VP128764	<u>Prep Date</u> 07/01/2024	Expiration Date 12/11/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	PipettelD None	<u>Supervised By</u> Mahesh Dadoda 07/02/2024
FROM	0.20000ml of V12798 + 19.08000ml of	of V14147 =	= Final Quanti	ty: 20.000 ml	resnyurt			07/02/2024



Recipe ID 1813	NAME 8260 Working Std(2-CVE)-50ppm	<u>NO.</u> VP128765	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
FROM	9.37500ml of V14147 + 0.62500ml of	f VP128762	= Final Quar	ntity: 10.000 ml				

<u>Recipe</u> <u>ID</u> 719	NAME 8260 Working STD (BCM)-First source, 400PPM	<u>NO.</u> VP128766	Prep Date 07/01/2024	Expiration Date 12/11/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 07/02/2024
FROM	1.50000ml of V13462 + 1.50000ml of	I f V13463 + 1	12.00000ml of	f V14147 = Fin		000 ml	1	5110212024



Recipe ID 253	NAME 8260 Working STD (BCM)-First source, 20PPM	<u>NO.</u> VP128768	Prep Date 07/01/2024	Expiration Date 12/11/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/02/2024
FROM	0.10000ml of V13463 + 9.90000ml o	f V14147 =	Final Quantity	/: 10.000 ml				

<u>Recipe</u> <u>ID</u> 254	NAME 8260 Working STD (BCM)-First source, 10PPM	<u>NO.</u> VP128769	<u>Prep Date</u> 07/01/2024	Expiration Date 12/11/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipettelD None	<u>Supervised By</u> Mahesh Dadoda 07/02/2024
FROM	0.05000ml of V13463 + 9.95000ml of	fV14147 =	Final Quantity	/: 10.000 ml	loonyure			51702/2021



Recipe ID 825 FROM	NAME 8260 Working STD (BCM)-Second source, 10PPM 0.10000ml of V12966 + 9.90000ml of	<u>NO.</u> <u>VP129196</u> f V14143 =	Prep Date 07/22/2024 Final Quantity	01/22/2025	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipettelD None	Supervised By Mahesh Dadoda 07/26/2024
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	PipetteID None	Supervised By Mahesh Dadoda 07/30/2024

FROM 1.00000ml of V14411 + 1.00000ml of V14412 + 1.00000ml of V14413 + 1.00000ml of V14414 + 21.00000ml of V14143 = Final Quantity: 25.000 ml



Recipe ID 180	NAME 8260 Working STD (Acrolein)-First source, 100PPM	<u>NO.</u> VP129230	Prep Date 07/25/2024	Expiration Date 08/24/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/30/2024
FROM	17.50000ml of V14143 + 2.50000ml	of VP12922	8 = Final Qua	antity: 20.000 n				

<u>Recipe</u> <u>ID</u> 181	NAME 8260 Working STD (Acrolein)-First source, 50PPM	<u>NO.</u> VP129231	<u>Prep Date</u> 07/25/2024	Expiration Date 08/24/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	<u>Supervised By</u> Mahesh Dadoda 07/30/2024
FROM	9.37500ml of V14143 + 0.62500ml of	I f VP129228	= Final Quar	ntity: 10.000 ml	-			



Recipe ID 263	(Acrolein)-Second source,	<u>NO.</u> VP129232	Prep Date 07/25/2024	08/23/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/30/2024
FROM	800PPM 0.60000ml of V14414 + 1.00000ml of	5 V14415 + 8	3.40000ml of 1	V14143 = Fina		00 ml		

Recipe ID 826	NAME 8260 Working STD	<u>NO.</u> VP129235	<u>Prep Date</u> 07/25/2024	Expiration Date 08/23/2024	Prepared By Semsettin	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda
EROM	(Acrolein)-Second source, 50PPM 4.68750ml of V14143 + 0.31250ml of	VP120232	= Final Quar	ntity: 5 000 ml	Yesilyurt			07/30/2024
<u>FROM</u>		129232		litty: 5.000 mi				



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Recipe ID 259	NAME 8260 Calibration Working STD Mix-Second source, 160PPM	<u>NO.</u> VP129236	Prep Date 07/22/2024	Expiration Date 08/31/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/30/2024
FROM	0.16000ml of V13448 + 0.80000ml o 0.80000ml of V14177 + 1.60000ml o						of V14123 +	

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Expiration</u> <u>Date</u>	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By
820	8260 Calibration Working STD		07/22/2024	08/31/2024	Semsettin	None	None	Mahesh Dadoda
	Mix-Second source, 10PPM				Yesilyurt			07/30/2024
FROM	4.68750ml of V14143 + 0.31250ml of	VP129236	= Final Quar	ntity: 5.000 ml				
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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 o 1.00000ml of V14016 + 1.00000ml o 1.00000ml of V14170 + 1.00000ml o Final Quantity: 25.000 ml	f V14017 +	1.00000ml of	V14103 + 1.000	000ml of V1410	4 + 1.00000ml o	of V14169 +	

Recipe ID 245	NAME 8260 Calibration Working STD	<u>NO.</u> VP129519	Prep Date 08/05/2024	Expiration Date 09/14/2024	Prepared By Semsettin	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda
FROM	Mix-First source, 20PPM 17.50000ml of V14143 + 2.50000ml of	of VP12951	 7 = Final Qua	antity: 20.000 n	Yesilyurt			08/08/2024



Recipe ID 246	NAME 8260 Calibration Working STD Mix-First source, 10PPM	<u>NO.</u> VP129520	Prep Date 08/05/2024	Expiration Date 09/14/2024	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/08/2024
FROM	9.37500ml of V14143 + 0.62500ml o	f VP129517	= Final Quar	ntity: 10.000 ml				

<u>Recipe</u> <u>ID</u> 589	NAME BFB TUNE CHECK	<u>NO.</u> VP129723	<u>Prep Date</u> 08/14/2024	Expiration Date 08/15/2024	Prepared By John Carlone	<u>ScaleID</u> None	PipettelD None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.98400ml of W3112 + 0.01600ml o	f VP128290) = Final Qua	ntity: 40.000 m	1			



Recipe ID 620	NAME 50 PPB CCC, 8260-Water	<u>NO.</u> VP129724	Prep Date 08/14/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.94450ml of W3112 + 0.00500ml o VP128762 + 0.01250ml of VP129228					1250ml of	

<u>Recipe</u> <u>ID</u> 620	NAME 50 PPB CCC, 8260-Water	<u>NO.</u> VP129725	<u>Prep Date</u> 08/14/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	<u>Supervised By</u> Mahesh Dadoda 08/15/2024
FROM	39.94450ml of W3112 + 0.00500ml o VP128762 + 0.01250ml of VP129228					1250ml of	



Recipe ID 2390	NAME 0.2PPB LOD, 8260-Water	<u>NO.</u> VP129726	Prep Date 08/14/2024	<u>Expiration</u> <u>Date</u> 08/15/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.98840ml of W3112 + 0.00080ml o VP129238 + 0.00800ml of VP128523				- 0.00080ml of \	/P129235 + 0.0	0080ml of	

Recipe ID 2947	NAME 0.5 ppb MDL 8260 Water	<u>NO.</u> VP129727	Prep Date 08/14/2024	Expiration Date 08/15/2024	Prepared By John Carlone	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.98000ml of W3112 + 0.00100ml o VP129519 + 0.00500ml of VP126666						0100ml of	



Recipe ID 3585	NAME 0.75 PPB MDL 8260 WATER	<u>NO.</u> VP129728	Prep Date 08/14/2024	<u>Expiration</u> <u>Date</u> 08/15/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.97000ml of W3112 + 0.00300ml o VP129520 + 0.00500ml of VP126666						0300ml of	

	cipe ID 786	NAME 2.5 PPB 8260 MDL-WATER	<u>NO.</u> VP129729	Prep Date 08/14/2024	Expiration Date 08/15/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/15/2024
E	<u>ROM</u>	39.92000ml of W3112 + 0.00800ml o VP129231 + 0.01000ml of VP129520				⊦ 0.01000ml of \	/P128769 + 0.0	1000ml of	



Recipe ID 3742	NAME 1.0 PPB LOQ 8260 Water	<u>NO.</u> VP129730	Prep Date 08/14/2024	<u>Expiration</u> <u>Date</u> 08/15/2024	<u>Prepared</u> <u>By</u> John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.98000ml of W3112 + 0.00200ml o VP129519 + 0.00500ml of VP126666						0200ml of	

Recipe ID 3748	NAME 8260 5.0 PPB LOQ/WATER	<u>NO.</u> VP129731	Prep Date 08/14/2024	Expiration Date 08/15/2024	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 08/15/2024
FROM	39.94000ml of W3112 + 0.00500ml o VP128768 + 0.01000ml of VP129230						1000ml of	



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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	121321	12/13/2024	06/25/2024 / SAM	03/30/2022 / SAM	V12794
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	121321	12/13/2024	06/25/2024 / SAM	03/30/2022 / SAM	V12798
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	70046 / Bromochloromethane Std. sol/methanol 1000ppm	070122	01/22/2025	07/22/2024 / SAM	07/06/2022 / SAM	V12966
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30067 / BFB tuneing solution	A0191805	12/08/2024	12/08/2023 / SAM	01/13/2023 / SAM	V13390
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0181905	12/14/2024	06/14/2024 / SAM	01/23/2023 / SAM	V13444
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0191703	12/03/2024	06/03/2024 / SAM	01/23/2023 / SAM	V13448



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	01/01/2025	07/01/2024 / SAM	01/27/2023 / SAM	V13462
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	01/01/2025	07/01/2024 / SAM	01/27/2023 / SAM	V13463
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A0186767	11/29/2024	05/29/2024 / SAM	01/27/2023 / SAM	V13539
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95318 / 2-Chloroethyl Vinyl Ether (Min = 5)	111722	12/25/2024	06/25/2024 / SAM	01/30/2023 / SAM	V13581
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2]	A0196865	06/10/2025	06/10/2024 / SAM	04/12/2023 / SAM	V13707
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2]	A0196865	09/19/2024	03/19/2024 / SAM	04/12/2023 / SAM	V13708



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0194279	01/30/2025	07/30/2024 / SAM	05/31/2023 / SAM	V13800
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0194279	12/28/2024	06/28/2024 / SAM	05/31/2023 / SAM	V13801
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0197644	11/29/2024	05/29/2024 / SAM	05/31/2023 / SAM	V13812
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0196115	09/30/2024	06/14/2024 / SAM	09/25/2023 / SAM	V13952
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0196115	09/30/2024	06/14/2024 / SAM	09/25/2023 / SAM	V13953
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0199224	12/31/2024	07/22/2024 / SAM	09/25/2023 / SAM	V13959



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	12/14/2024	06/14/2024 / SAM	11/22/2023 / SAM	V14016
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	032922	12/14/2024	06/14/2024 / SAM	11/22/2023 / SAM	V14017
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0205177	11/14/2024	05/14/2024 / SAM	12/22/2023 / SAM	V14093
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 #
Absolute Standards, Inc.	95319 / Revised Additions Mix (Min = 5)	011624	12/03/2024	06/03/2024 / SAM	01/17/2024 / SAM	V14123



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	12/10/2024	06/10/2024 / SAM	02/06/2024 / SAM	V14142
			Expiration		Bassived Date /	Chamtach

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 #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021524	12/03/2024	06/03/2024 / SAM	02/20/2024 / SAM	V14177
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,	A0210184	06/10/2025	06/10/2024 /	04/15/2024 /	

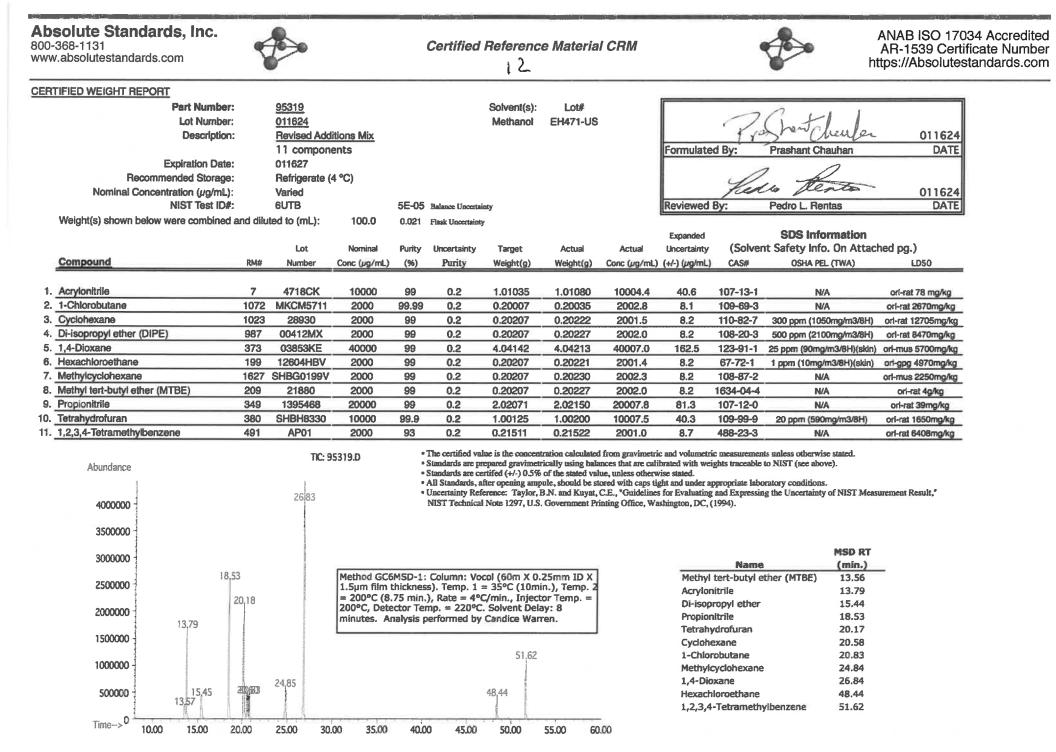


CHEMICAL RECEIPT LOG BOOK

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	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	V14415
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 /	07/03/2024 /	W3112

lwona

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www.absolutestandards.com

Certified Reference Material CRM



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

CER	TIFIED WEIGHT REPORT									Øshussiteh.	8.45						
	Part Number: Lot Number:									Solvent(s): Methenol	Lolf EG359-USQ	12			and the second	in the hur	
			ai VOA Megami	20											. Jn		021524
			ponents											Formulate	ed By:	Mario Luis	DATE
	Expiration Date: Recommended Storage:		10 903												1		
	Nominal Concentration (ug/mL):		(0.0)												Jed.	to pleator	021524
	NIST Test ID#:				5E-05	Balance Uncertain	nty							Reviewed	By:	Pedro L. Rentas	DATE
	Weight(s) shown below were combined a	and dilute	ed to (mL):	100.0	0.021	Flash Uncertainty	1									0100 Information	
					1-101-1	1222	Nominal	the side of	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty	(Solve	SDS Information Int Safety Info. On Attach	ed pg.)
	Compound	(RM#) Part Numb	Lot or Number	Dil. Factor	Initial Viol. (ml.)	Conc.(ug/mL)		Purity (%)	Uncertainty		Weight(g)	Weight(g)	Conc (ug/mL)			OSHA PEL (TWA)	L050
	Compound																
1.	Acetonitrie	(0324)	021644	NA	NA	NA	2000	99.99	0.2	NA	0.20007	0.20022	2001.5	8.1	75-05-8	40 ppm (70mg/m3/8H)	orf-rat 2450mg/kg
2,	Allyl chloride (3-Chloropropene)	(0325)	102396	NA	NA	NA	2000	99	0.2	NA	0.20207	0.20222	2001.5	8.2	107-05-1 75-15-0	1 ppm (3mg/m3/8H) 4 ppm (12mg/m3) (skin)	orl-ret 700mg/kg orl-ret 1200mg/kg
3.	Carbon disulphide	(0060) (1196)	MKCR8561 14718EF	NA	NA	NA	2000	99.99 95	0.2	NA NA	0.20007	0.21060	2001.3	8.5	1478-11-5	N/A	N/A
4.	cis-1,4-Dichloro-2-butene trans-1,4-Dichloro-2-butene	(0486)	MKBP6041V	NA	NA	NA	2000	96.5	0.2	NA	0.20731	0.20734	2000.3	8.4	110-57-6	NA	N/A
6.	Diethyl other	(0153)	IK1BCAS0000	NA	NA	NA	2000	99.9	0.2	NA	0.20025	0.20042	2001.7	8.1	80-29-7	NA	N/A
7.	Ethyl methacrylate	(0381)	06126PX	NA	NA	NA	2000	99	0.2	NA	0.20207	0.20231	2002.4	8.2	97-63-2	N/A	orl-rat 14800mg/kg
8.	lodomethane	(0489)	SHBF8718V	NA	NA	NA	2000	99.5	0.2	NA NA	0.20106	0.20118	2001.2 2001.4	8.1	74-88-4 78-83-1	5 ppm(26mg/m3/6H)(skin) 50 ppm (150mg/m3/6H)	orl-rat 75mg/kg orl-rat 2460mg/kg
9.	2-Methyl-1-propanol	(0445)	15241EB	NA	NA	NA	2000	99.5 99	0.2	NA	0.20108	0.20209	2000.2	8.2	126-98-7	1 ppm (3mg/m3/8H)(sidn)	orl-rat 120mg/kg
10. 11.	Methacrylonitrile Methyl acrylate	(0442) (1075)	00427ET SHBK0679	NA	NA	NA	2000	99.9	0.2	NA	0.20025	0.20042	2001.7	8.1	95-33-3	10 ppm(35mg/m3/8H)(sidn)	ord-net 277mg/kg
12.	Methyl methacrylate	(0404)	MKBW5137V	NA	NA	NA	2000	99.9	0.2	NA	0.20025	0.20030	2000.5	8.1	80-62-6	100 ppm (410mg/m3/8H)	orl-rat 7872mg/kg
13.	Nitrobenzene	(0228)	01213TV	NA	NA	NA	2000	89	0.2	NA	0.20207	0.20230	2002.3	8.2	98-95-3	1 ppm (Smg/m3/8H)(skin)	ori-tal 750mg/kg
14.	2-Nitropropane	(0461)	14002JX	NA	NA	NA	2000	97.3	0.2	NA	0.20560	0.20670	2001.0	8.3	79-46-9 76-01-7	10 ppm (35mg/m3/8H) N/A	orl-rat 720mg/kg N/A
15.	Pentachloroethane	(0450) (0474)	HGA01 18930	NA	NA	NA	2000	98	0.2	NA	0.20207	0.20210	2000.3	8.2	78-13-1	1000 ppm (7600mg/m3/6H)	orl-rat 43g/kg
16. 17.	1,1,2-Trichlorotrilluoroethane Bromodichloromethane	35171	101623	0.05	6.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-27-4	NA	orl-rat 916mg/kg
18.	Dibromochloromethane	35171	101623	0.05	5.00	40002.1	2000	NA	NA	0.017	NA	NA	1999.6	23.0	124-48-1	N/A	orl-rat 648mg/kg
19.	cie-1,2-Dichloroethene	35171	101623	0.05	5.00	40003.1	2000	NA	NA	0.017	NA	NA	1999.7	22.9	156-59-2	N/A	N/A
20.	trans-1,2-Dichlorosthene	35171	101623	0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA	1999.6	23.0	156-60-5	N/A 500 mm	orl-rat 1235mg/kg orl-rat 820mg/kg
21.	Methylene chloride	35171	101823	0.05	5.00	40002.8	2000	NA NA	NA	0.017	NA	NA	1999.6	20.4	75-09-2 75-35-4	500 ppm 1 ppm (4mg/m3/8H)	ori-rat 200mg/kg
22. 23.	1,1-Dichloroethene Bromoferm	32251 95321	102023	0.10	10.00	20001.6 20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	orl-ret 933mg/kg
24.	Carbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1909.B	20.4	56-23-6	2 ppm (12.6mg/m3/8H)	ori-rat 2350mg/kg
25.	Chloroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-66-3	50 ppm (240mg/m3) (CL)	phpm809 tar-ho
26.	Dibromomethane	95321	020724	0.10	10.00	20002.9	2000	NA	NA	0.042	NA	NA	1990.8	20.5	74-95-3	N/A	orl-rat 106mg/kg
27.	1,1-Dichioroethane	95321	020724	0.10	10.00	20003.4	2000	NA NA	NA	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm N/A	orl-rat 725mg/kg N/A
	2,2-Dichloropropane	95321 95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	2019.6	20.6	127-18-4	25 ppm (170mg/m3/8H)(final)	orl-tet 2629mg/kg
29. 30.	Tetrachloroethene 1,1,1-Trichloroethane	95321	020724	0.10	10.00	20003.0	2000	NA	NA	0.042	NA	NA	1999.8	20.5	71-55-6	360 ppm (1900mg/m3/6H)	orl-rat 10300mg/kg
	1,2-Dibromo-3-chiloropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA	2000.3	22.9	96-12-8	0.001 ppm	orl-rat 170mg/kg
32.	1,2-Dibromoethane	36161	112322	0.05	5.00	40024.8	2000	NA	NA	0.017	NA	NA	2000.7	22.9	108-83-4	20 ppm (8H)	orf-nit 108mg/kg
	1,2-Dichloroethane	35161	112322	0.05	5.00	40018.0	2000	NA NA	NA	0.017	NA	NA	2000.4 2002.0	22.9	107-08-2 78-87-5	50 ppm (8H) 75 ppm (350mg/m3/8H)	ori-rat 670mg/kg ori-rat 1947mg/kg
	1,2-Dichloropropane	35161 35161	112322	0.05	5.00	40051.0	2000	NA	NA	0.017	NA	NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600mg/kg
	1,3-Dichloropropane 1,1-Dichloropropene	35161	112322	0.05	5.00	40012.1	2000	NA	NA	0.017	NA	NA	2000.1	29.7	583-58-6	NA	NA
	cis-1,3-Dichloropropene	35161	112322	0.05	5.00	40010.0	2000	NA	NA	0.017	NA	NA	2000.0	23.0	10061-01-5	N/A	N/A
38.	trane-1,3-Dichloropropene	35161	112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4	23.0	10061-02-6	N/A	N/A orl-rat 82mg/kg
39.	Hexachloro-1,3-butadiene	35161	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7 22.9	87-68-3 630-20-6	0.02 ppm (0.24mg/m3/8H) N/A	cri-rat 670mg/kg
40.	1,1,2-Tetrachioroethane	35161 35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	1999.9	22.9	79-34-5	5 ppm (35mg/m3/9H)(skin)	orl-rat 800mg/kg
	1.1.2-Trichloroethane	35161	112322	0.05	5.00	40008.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (45mg/m3/8H)(skin)	orl-rat 836mg/kg
43.	Trichlorosthene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/8H)	orl-mus 2402mg/kg
44.	1,2,3-Trichloropropane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4 71-43-2	10 ppm (60mg/m3/8H)	orl-rat 149.0mg/kg orl-rat 4894mg/kg
45.	Benzene	35162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	108-86-1	1 ppm N/A	ori-rat 2009mg/kg
46.	Bromobenzene n-Butyl benzene	35162 35162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.7	22.9	104-51-8	N/A	N/A
	Ethyl benzene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	100-41-4	100 ppm (435mg/m3/8H)	orl-rat>2000mg/kg
	p-isopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	99-87-8	NA	orl-rat 4750mg/kg
50.	Naphihalene	35162	050823	0.05	6,00	40006.2	2000	NA	NA	0.017	NA	NA NA	1999.8	22.9	91-20-3 100-42-5	10 ppm (50mg/m3/8H) 100 ppm	orl-rat 490mg/kg orl-rat 5000mg/kg
	Styrene	35162	050823	0.05	5.00	40004.8 40006.2	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-68-3	200 ppm	orl-rat 5000mg/kg
	Toluene 1,2,3-Trichlorobenzene	35162 35162	050823	0.05	5.00	40008.2	2000	NA	NA	0.017	NA	NA	1999.7	22.9	87-61-6	NA	ipr-mus 1390mg/kg
	1,2,4-Trichiorobenzene	35162	050823	0.05	5.00	40006.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	120-62-1	5 ppm (CL) (40mg/m3)	ori-nat 756mg/kg
1.2.4	1,2,4-Trimethylbenzene	35162	050823	0.05	5.00	40001.6	2000	NA	NA	0.017	NA	NA	1999.6	23.0	95-63-6	NA	ori-rat 5g/kg
	1,3,5-Trimethylbenzene	35162	050B23	0.05	5.00	40006.7	2000	NA	NA	0.017	NA	NA	1999.8 1999.8	22.9	108-67-8	N/A 100 ppm (435mg/m3/8H)	orl-rat 5000mg/kg orl-rat 5g/kg
	m-Xylene	35162	050823	0.05	5.00	40005.8 40001.2	2000	NA	NA	0.017	NA	NA	1999.6	22.9	98-06-6	N/A	N/A
	tert-Butyl benzene sec-Butyl benzene	35163 35163	101923	0.05	5.00	40001.2	2000	NA	NA	0.017	NA	NA	1999.6	22.9	135-98-8	N/A	ort-rat 2240mg/kg
	Chlorobanzene	35163	101923	0.05	5.00	40003.8	2000	NA	NA	0.017	NA	NA	1999.7	22.9	108-90-7	75 ppm (350mg/m3/8H)	ori-rat 2290mg/kg
	2-Chiorololuene	35163	101923	0.05	5.00	40000.3	2000	NA	NA	0.017	NA	NA	1999.5	22.9	95-49-8	60 ppm (250mg/m3/84-6)	ort-rat 3900mg/kg
	4-Chlorotoluene	35163	101923	0.05	5.00	40003.3	2000	NA	NA	0.017	NA	NA	1999.7	22.9	106-43-4 95-50-1	N/A 50 ppm (300mg/m3) (CL)	orl-rat 2100mg/kg orl-rat 500mg/kg
	1,2-Dichlorobenzene	35163	101923	0.05	5.00	40003.8	2000	NA	NA	0.017	NA	NA	1999.7 1999.6	22.9	541-78-1	SUppm (Scompma) (CL) N/A	ipr-mus 1062mg/kg
	1,3-Dichlorobenzene 1,4-Dichlorobenzene	35163 35163	101923	0.05	5.00	40001.8	2000	NA	NA	0.017	NA	NA	1999.6	22.9	106-46-7	75 ppm (450mg/m3/8H)	orl-rat 600mg/kg
	Isopropylbenzene	35163	101923	0.05	5.00	40000.8	2000	NA	NA	0.017	NA	NA	1999.5	22.9	98-82-8	50 ppm (245mg/m3/8H)	orl-rat 1400mg/kg
	n-Propylbenzene	35163	101923	0.05	5.00	40003.4	2000	NA	NA	0.017	NA	NA	1999.7	23.0	109-65-1	N/A	ort-rat 6040mg/kg
68.	o-Xylena	35163	101923	0.05	5.00	40040.8	2000	NA	NA	0.017	NA	NA	2001.5	23.0	95-47-6	100 ppm (435mg/m3/6H)	pr-mus 1384mg/kg orl-net 5g/kg
69.	p-Xylene	35163	101923	0.05	5.00	40000.8	2000	NA	NA	0.017	NA	NA	1999.5	22.9	108-42-3	100 ppm (435mg/m3/8H)	Million

Cite carrillo value is the concenterwise celetated from gravitatorie and volumetrie measurements unless otherwise similal.
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Run 17, "P95317 L021	i24 I2000µg/mL in MeOHI"	Peak 2	Name
HARIERS I ADDIE POPI	ma moodeline er endante	3	Ether 1,1,2-Trichloro-1,2,2-Inlibiorpethana
		3	1,1-Dichloroethene
Dum Longila: 00.00 min. 2	5000 nainte at 10 nainte canand	*	Acetonitrile
Hun Lengin. 60.00 min, 3	5998 points at 10 points/second. 44 at 10:04:27 AM.	5	Indomethane
Created: Sat. Feb 17, 20	4 at 10:04:27 AM.	6	Allyi shloride
Compled: Companes *02	624-GC5M1", Method "GC5-M1".	7	Carbon disulfide/Mathylone chloride
		8	trans-1,Z-Dichloroethens
Analyzed using Method "	GC5-M1".	9	1,1-Dichlorosthane
		10	2,2-Dichloropropane
		11	63-1,2-Dichloroethene
Comments		12	Hethecrylonitrile/Hethyl acrylate/Chloroft
		13	Isobutanol/1,1,1-Trichloroethane
GC5-M1 Analysis by Car	dice Warren	14	1,1-Dichisropropene
		15	Carison tetrachloride
CONTRACTO 260-A0001 IC	5 meter X 0.53mm X 3.0µm film thickness	16	Benzene/1,2-Dichloroethane
Flow rates Total flow=29	DmL/min., Helium (carrier)=10mL/min., nin., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min. *C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.),	17	Trictionoethene
Linking (makes and _ 16ml	the demonstration with Aland Imin Airfrantes with Oldent Imin	18	1,2-Dichloropropaite
rienum(make-up)=romu	ин., пуслден(таке-up)≔илт.лпп., Ан(таке-up)=∠элтслип.	19	Hsinyi methacrylate
Oven Profile: Termo 1=3	"C (Time 1=10 min) Termo 2=200"C (Time 2=8.75 min)	20	Bromodichioremethene
The Allerty Total		21	Dibromomethane/2-Nitropropane
Hate = 4 G/min., 10tal ru	time=60 min. Injector temp.=200°C, FID Temp.=200°C.	22	cis-1,3-Dichioropropone
FID Signal = Edaq Chanr		23	Toluane
		24	Ethyl methecrylete/trans-1,3-Dickloropro;
Standard injection = 0.5μ	_, Hange=3	25	1,1,2-Trichloroethane
		26	Tetrachioraethene/1,3-Dichloropropene
×		27	Dibromochionomethane
1		28	1,2-Dipromoethane
		19	Chiorobenzene
4000000		30	Ethylbonzene/1,1,1,2-Retrachlonoethane
1000000-		31	m-Nytene/p-Xylene
1		32	e-Xviene
		33	Styrene
1 1		34	isopropylbeneene/Bromoform
		35	cis-1,4-Dichloro-2-butene
800000-		36	1,1,2,2-Tetrachioroethene
over v		37	1,2,3-Intchloropropane
		38	n-Propy/benzene
		39	trans-1,4-Dichloro-2-butane
(I	in the second	-40	Breinobenzene
		-42	1,3,5-Trimethyibeneene
600000-		42	2-Chiorotoluene
		43	4-Childrotoluene
3		44	tert-Bodylbenzenie
		45	1,2,4-Trimethylbenzene
	2 77	46	Perstachioroethene
110/00/00	D	42	sec-Butylbenzens
400000-		48	p-laopropyko/uene
		49	1.3-Dichierobenzene
		\$0	L.4-Dichlorobenzone
1		51	n-Butylbenzene
		52	1,2-Dichlorobenzana
		53	1,2-Oloromo+3-chloropropens
200000-		54	Nitrobencene
		55	1,2.4-Trictionsbenzesve
		rsiek.	Hexactivorobutaciana
1 1		57	Naphthalene
	N TRU, J & AU, APU, AND I DAYARS, UL II ALAMII BIAMANA A TAUA	58	1,2,3-michtonobenzene
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-**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	0.20040	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	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-mus 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.)
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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-Titteriorobarbine
 L,2,2-Titteriorobarbine
 Torsophisame
 trans-1,A-Oldistare-2-budene
 Senonbarrene
 trans-1,A-Oldistare-4 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-Trichkorobenker \$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 RELEASE MEASURES 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 RELEASE MEASURES 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 RELEASE MEASURES 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 RELEASE MEASURES 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 RELEASE MEASURES 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 ND STORAGE	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 (so	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 RELEASE MEASURES 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 ND STORAGE 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 RELEASE MEASURES 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 ND STORAGE 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 RELEASE MEASURES 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 ND STORAGE 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 RELEASE MEASURES 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 ND STORAGE 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 RELEASE MEASURES 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 ND STORAGE 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 RELEASE MEASURES 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 ND STORAGE 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. CONTROLS/PERSONAL PROTECTI	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.



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-**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	0.20040	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	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 98-18-4	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 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	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

10



 contac.)
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 0,077

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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-Titteriorobarbine
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Absolute Standards Inc.

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

Address 44 Rossottic Hamden C Section II - Hazards Identification GHS C 4225 Highly Flammable Liq Cause damage to organ 2271 Use In ventilated area 2302,332 If on skin, wash with se Section III - Composition Section III - Composition Components (Specific Chemical Identity; Methanol Section IV. FIRST AID MEASURES eneral advice Consult a phys If inhaled inhaled Kin contact case of skin contact Rinse thorough Do NOT induce swallowed Do NOT induce	CT, 06514 Classification In accord ans soap and water Word: DANGER Word: DANGER Common Name(s)) /L ALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	Emergency Tele Date Prepared// dance with 29 CF H301, 311, 331 H351 P280 P305,351,338 CAS#: 67-56-1 esent At Trace (a sheet to the doctor in to breathing, give artiflusician. at least 15 minutes and	R 1910 (OSHA HCS) Toxic if swallowed, skin cont Suspected of causing cancer Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities.	r ace sheild		
Hamden C Bection II - Hazards Identification GHS C 1225 Highly Flammable Liq 1370 Cause damage to orga 271 Use In ventilated area P302,332 If on skin, wash with se Signal Signal Signal Components (Specific Chemical Identity; Methanol Consult a physe Identification IV. FIRST AID MEASURES Particular State Consult a physe If inhaled, mov Consult a physe Identification V. FIREFIGHTING MEASURES	CT, 06514 Classification In accord ans soap and water Word: DANGER Word: DANGER Common Name(s)) /L ALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	Date Prepared// dance with 29 CF H301, 311, 331 H351 P280 P305,351,338 CAS#: 67-56-1 cesent At Trace (a sheet to the doctor in to breathing, give artiflusician. at least 15 minutes and	Revised R 1910 (OSHA HCS) Toxic if swallowed, skin cont Suspected of causing cancer Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities. n attendance.Move to safe area. icial respiration. Consult a physician. d consult a physician.	January 1, 2023 fact, inhaled r ace sheild rinse with water % (optional)		
Section II - Hazards Identification GHS C Highly Flammable Liq Cause damage to orga P271 Use In ventilated area P302,332 If on skin, wash with s Section III - Composition Signal Section III - Composition Signal Components (Specific Chemical Identity; Methanol METHY See Certified Weight Report For the section IV. FIRST AID MEASURES Methanol See consult a physe inhaled If inhaled, move the section IV. FIRST AID MEASURES Sease of skin contact Wash with soar the section V. FIREFIGHTING MEASURES Section V. FIREFIGHTING MEASURES Do NOT induce	Classification In accord quid and Vapor ans soap and water Word: DANGER "; Common Name(s)) /L ALCOHOL Other Analytes Pre- RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	dance with 29 CF H301, 311, 331 H351 P280 P305,351,338 CAS#: 67-56-1 cesent At Trace (a sheet to the doctor in ot breathing, give artiflu- sician. at least 15 minutes and	R 1910 (OSHA HCS) Toxic if swallowed, skin cont Suspected of causing cancer Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities.	act, inhaled r ace sheild rinse with water % (optional)		
GHS C H1225 Highly Flammable Liq H370 Cause damage to organise to org	r; Common Name(s)) // ALCOHOL Other Analytes Pre RIAL sician. Show this safety data ve person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	H301, 311, 331 H351 P280 P305,351,338 CAS#: 67-56-1 esent At Trace (a sheet to the doctor in ot breathing, give artific sician. at least 15 minutes and	Toxic if swallowed, skin cont Suspected of causing cancer Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities.	r ace sheild rinse with water 		
H225 Highly Flammable Liq H370 Cause damage to organise to reproduce the section of the section	r; Common Name(s)) // ALCOHOL Other Analytes Pre RIAL sician. Show this safety data ve person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	H301, 311, 331 H351 P280 P305,351,338 CAS#: 67-56-1 esent At Trace (a sheet to the doctor in ot breathing, give artific sician. at least 15 minutes and	Toxic if swallowed, skin cont Suspected of causing cancer Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities.	r ace sheild rinse with water 		
H370 Cause damage to orgate Use In ventilated area P271 Use In ventilated area P302,332 If on skin, wash with second area If on skin, wash with second area Signal If on skin, wash with second area Signal Section III - Composition Signal Components (Specific Chemical Identity; Methanol METHY See Certified Weight Report For the Section IV. FIRST AID MEASURES Consult a physe Seneral advice Consult a physe Inhaled If inhaled, move In case of skin contact Wash with sea In case of skin contact Rinse thorough If swallowed Do NOT induce	ans soap and water Word: DANGER '; Common Name(s)) /L ALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	H351 P280 P305,351,338 CAS#: 67-56-1 esent At Trace (a sheet to the doctor in ot breathing, give artiflu- sician. at least 15 minutes and	Suspected of causing cancer Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities.	r ace sheild rinse with water 		
P271 Use In ventilated area if on skin, wash with serve if on skin, wash with serve if inhaled P302,332 If on skin, wash with serve if inhaled Section III - Composition Signal Section III - Composition METHY Components (Specific Chemical Identity; Methanol METHY See Certified Weight Report For of INTENDED USE: REFERENCE MATER Section IV. FIRST AID MEASURES General advice f inhaled n case of skin contact n case of eye contact f swallowed Consult a physe if inhaled, mov Ukash with soa Do NOT induce Section V. FIREFIGHTING MEASURES Section V. FIREFIGHTING MEASURES	Word: DANGER Word: DANGER (Common Name(s)) (CALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	P280 P305,351,338 CAS#: 67-56-1 esent At Trace (a sheet to the doctor in ot breathing, give artific sician. at least 15 minutes and	Use gloves, eye protection/fa If in eyes, remove contacts, r Quantities.	ace sheild finse with water 		
Signal Section III - Composition Components (Specific Chemical Identity; Methanol See Certified Weight Report For Content See Certified Weight Report For Content INTENDED USE: REFERENCE MATER Section IV. FIRST AID MEASURES Seneral advice f inhaled in case of skin contact in case of skin contact in swallowed Consult a physe if inhaled, mov Wash with soa Rinse thorough to NOT induce Rinse thorough to NOT induce Section V. FIREFIGHTING MEASURES Section V. FIREFIGHTING MEASURES	Word: DANGER ; Common Name(s)) /L ALCOHOL Other Analytes Pre- RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth with	P305,351,338 CAS#: 67-56-1 esent At Trace (a sheet to the doctor in ot breathing, give artific sician. at least 15 minutes and	If in eyes, remove contacts, r Quantities. n attendance.Move to safe area. icial respiration. Consult a physician. d consult a physician.	'inse with water		
Section III - Composition Components (Specific Chemical Identity; Methanol METHY See Certified Weight Report For (NTENDED USE: REFERENCE MATER Section IV. FIRST AID MEASURES General advice f inhaled n case of skin contact n case of eye contact swallowed Consult a phys f iswallowed Consult a phys f iswallowee	r; Common Name(s)) /L ALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	a sheet to the doctor in to breathing, give artifliv sician. at least 15 minutes and	n attendance.Move to safe area. icial respiration. Consult a physician. d consult a physician.			
Components (Specific Chemical Identity; Methanol METHY See Certified Weight Report For (INTENDED USE: REFERENCE MATER Section IV. FIRST AID MEASURES General advice Consult a phys f inhaled If inhaled, mov n case of skin contact Wash with soa n case of eye contact Rinse thorough f swallowed Do NOT induce Section V. FIREFIGHTING MEASURES	ALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	a sheet to the doctor in to breathing, give artifliv sician. at least 15 minutes and	n attendance.Move to safe area. icial respiration. Consult a physician. d consult a physician.			
See Certified Weight Report For INTENDED USE: REFERENCE MATER Section IV. FIRST AID MEASURES General advice f inhaled n case of skin contact n case of eye contact f swallowed Section V. FIREFIGHTING MEASURES	ALCOHOL Other Analytes Pre RIAL sician. Show this safety data we person into fresh air. If no ap and water. Consult a phy hly with plenty of water for a se vomiting. Rinse mouth wit	a sheet to the doctor in to breathing, give artifliv sician. at least 15 minutes and	n attendance.Move to safe area. icial respiration. Consult a physician. d consult a physician.			
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Section V. FIREFIGHTING MEASURES	e vomiting. Rinse mouth wit	at least 15 minutes and th water. Consult a phy	d consult a physician.			
Section V. FIREFIGHTING MEASURES		th water. Consult a phy	vololog			
			ysician.			
lammability Flammability heat/spark	le in the presence of a source ks/open flame/hot surface.	ce of ignition when the No smoking	e temperature is above the flash point.	Keep away from		
Suitable extinguishing media Use water	r spray, alcohol-resistant foa	am, dry chemical or ca	arbon dioxide.			
Protective equipment for fire Wear self	contained breathing appara	atus for fire fighting if r	necessary.			
Section VI. ACCIDENTAL RELEASE ME	EASURES					
Personal precautions Wear respirator	ry protection. Avoid breathin	ng vapors, mist or gas.	. Ensure adequate ventilation. Remove	e all sources of		
ignition. Vapour	rs accumulate to form explo	sive concentrations.				
nvironmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. ean up Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).						
ection VII. HANDLING AND STORAGE				e section 13).		
recautions for safe handling Avoid conta Use ventila	tact with skin and eyes. Avoi ation Keep away from source	id inhalation of vapour	r or mist. oking. Prevent the build up of electrost	atio oborgo		
torage Conditions Keep conta	ainer tightly closed in a dry a pright to prevent leakage.	and well-ventilated pla	oking. Prevent the build up of electrost ace. Containers which are opened mus	and charge. at be carefully resealed		
ection VIII. EXPOSURE CONTROLS/PI	ERSONAL PROTECTI	ON				
lethanol 67-56-1 TWA 200 ppm kin notation TWA 200 ppm otential for skin absorption , ingestion and inhalat	ition.					
ersonal protective equipment Respiratory prot void contact with skin, eyes and clothing. Wash h	tection Handle with gloves	. Gloves must be insp				

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. 800-368-1131 www.absolutestandards.com



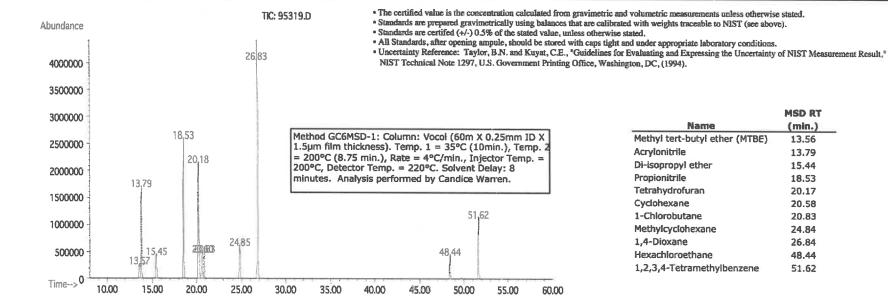
Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

	THED WEIGHT REFORT												
	Part Number:		<u>95319</u>				Solvent(s):	Lot#	1				
	Lot Number:		032922				Methanol	EC592-US			21	GELL	
	Description:		Revised Addi	tions Mix							Fra	Shew Cheuler	032922
			11 compone	ents						Formulated	By:	Prashant Chauhan	DATE
	Expiration Date:		032925										
	Recommended Storage:		Refrigerate (4	‡ °C)							1	h	
	Nominal Concentration (µg/mL):		Varied								ful	to planto	032922
	NIST Test ID#:		6UTB		5E-05	Balance Uncertain	nty			Reviewed	By:	Pedro L. Rentas	DATE
	Weight(s) shown below were combined a	nd dilut	ted to (mL):	100.0	0.012	Flask Uncertainty	r						
										Expanded		SDS Information	
			Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Solven	t Safety Info. On Attach	ied pg.)
	Compound	RM#	Number	Conc (µg/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL)	(+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
			1.1.										
1.	Acrylonitrile	7	4718CK	10000	99	0.2	1.01015	1.01030	10001.5	40.5	107-13-1	N/A	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	N/A	orl-rat 2670mg/kg
	Cyclohexane	1023	28930	2000	99	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050mg/m3/8H)	orl-rat 12705mg/kg
	Di-isopropyl ether (DIPE)	987	00412MX	2000	99	0.2	0.20203	0.20215	2001.2	8.2	108-20-3	500 ppm (2100mg/m3/8H)	orl-rat 8470mg/kg
	1,4-Dioxane	373	03853KE	40000	99	0.2	4.04060	4.04100	40004.0	161.9	123-91-1	25 ppm (90mg/m3/8H)(skin)	
	Hexachioroethane	199	12604HBV	2000	99	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	1 ppm (10mg/m3/8H)(skin)	orl-gpg 4970mg/kg
	Methylcyclohexane	1627	08046KN	2000	99	0.2	0.20203	0.20215	2001.2	8.2	108-87-2	N/A	N/A
	Methyl tert-butyl ether (MTBE)	209	02197JJ	2000	99.8	0.2	0.20041	0.20055	2001.4	8.1	1634-04-4	N/A	orl-rat 4g/kg
	Propionitrile	349	1395468	20000	99	0.2	2.02030	2.02045	20001.5	81.0	107-12-0	N/A	orl-rat 39mg/kg
	Tetrahydrofuran	380	SHBH8330	10000	99.9	0.2	1.00105	1.00120	10001.5	40.1	109-99-9	20 ppm (590mg/m3/8H)	orl-rat 1650mg/kg
11.	1,2,3,4-Tetramethylbenzene	491	AP01	2000	93	0.2	0.21506	0.21520	2001.3	8.7	488-23-3	N/A	orl-rat 6408mg/kg



	MSD RT
Name	(min.)
Methyl tert-butyl ether (MTBE)	13.56
Acrylonitrile	13.79
Di-isopropyl ether	15.44
Propionitrile	18.53
Tetrahydrofuran	20.17
Cyclohexane	20.58
1-Chlorobutane	20.83
Methylcyclohexane	24.84
1,4-Dioxane	26.84
Hexachloroethane	48.44
1,2,3,4-Tetramethylbenzene	51.62

> 99

200 ppm

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

	TICAL STANDARD DISSOLVED IN M	METHANOL	
Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr.	Emergency Telephone International	1-352-323-3500
	Hamden CT, 06514	Date Prepared/Revised	January 1, 2023
Section II - Hazards Ide	ntification		

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

H225 H370 P271 P302,332	Cau Use	se damag in ventila	able Liquid and Vapor e to organs ted area sh with soap and water Signal Word: DANGER	H301, 311, 331 H351 P280 P305,351,338	Toxic if swallowed, skin co Suspected of causing can Use gloves, eye protection If in eyes, remove contacts	cer /face sheild
Section III	- Compos	sition				
Component	s:		CAS#:	LD50 Oral - Rat	OSHA	PEL % (optional)

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

67-56-1

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

Methanol

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash with soap and water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

2,769 mg/kg

Section V. FIREFIGHTING MEASURES

Flammability	Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from
	heat/sparks/open flame/hot surface. No smoking.
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of
	ignition. Vapours accumulate to form explosive concentrations.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Clean up	Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Storage Conditions	Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed
	and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol 67-56-1 TWA 200 ppm

Skin notation TWA 200 ppm

Potential for skin absorption , ingestion and inhalation.

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

Section IX - Physical/Chemical Characteristics

Absolute Standards Inc.

PO Box 5585 Hamden, CT 06518-0585

Chemical stability Possibility of hazardous reactio Conditions to avoid	Heat, flames, spar	explosive mixturks, extreme tem		
Section X. STABILITY AN	ID REACTIVITY			
Appearance and Odor	CLEAR, COLORLE	SS LIQUID W	/ITH CHARACTERISTIC PUNGENT ODOR.	
Solubility in Water	COMPLETE			
Vapor Density (AIR = 1)		1.11	Evaporation rate (Butyl Acetate = 1)	4.6
Vapor Pressure (mm Hg)		96	Melting Point	-98°C
Boiling Point		65°C	Specific Gravity (H2O = 1)	0.79

Materials to avoid Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

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

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

 DOT (US)
 IATA

 UN number: 1230 Class: 3 Packing group: II
 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. scq.) 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. 800-368-1131 www.absolutestandards.com



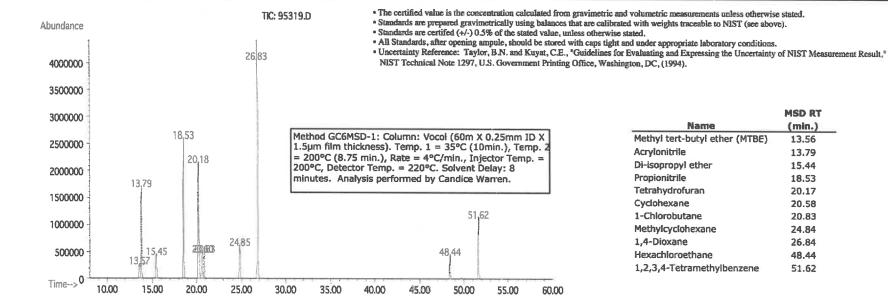
Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT

	THED WEIGHT REFORT												
	Part Number:		<u>95319</u>				Solvent(s):	Lot#	Ī				
	Lot Number:		032922				Methanol	EC592-US			21	GELL	
	Description:		Revised Addi	tions Mix							Fra	Shew Cheuler	032922
			11 compone	ents						Formulated	i By:	Prashant Chauhan	DATE
	Expiration Date:		032925									. 1	
	Recommended Storage:		Refrigerate (4	F°C)							1	A	
	Nominal Concentration (µg/mL):		Varied								ful	to planto	032922
	NIST Test ID#:		6UTB		5E-05	Balance Uncertain	nty			Reviewed	By:	Pedro L. Rentas	DATE
	Weight(s) shown below were combined a	nd dilut	ted to (mL):	100.0	0.012	Flask Uncertainty	,						
										Expanded		SDS Information	
			Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Solven	t Safety Info. On Attach	ied pg.)
	Compound	RM#	Number	Conc (µg/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL)	(+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
			1										
1.	Acrylonitrile	7	4718CK	10000	99	0.2	1.01015	1.01030	10001.5	40.5	107-13-1	N/A	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	N/A	orl-rat 2670mg/kg
3.	Cyclohexane	1023	28930	2000	99	0.2	0.20203	0.20215	2001.2	8.2	110-82-7	300 ppm (1050mg/m3/8H)	orl-rat 12705mg/kg
4.	Di-isopropyl ether (DIPE)	987	00412MX	2000	99	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	99	0.2	4.04060	4.04100	40004.0	161.9	123-91-1	25 ppm (90mg/m3/8H)(skin)	
6.	Hexachloroethane	199	12604HBV	2000	99	0.2	0.20203	0.20213	2001.0	8.2	67-72-1	t ppm (10mg/m3/8H)(skin)	orl-gpg 4970mg/kg
7.	Methylcyclohexane	1627	08046KN	2000	99	0.2	0.20203	0.20215	2001.2	8.2	108-87-2	N/A	N/A
8.	Methyl tert-butyl ether (MTBE)	209	02197JJ	2000	99.8	0.2	0.20041	0.20055	2001.4	8.1	1634-04-4	N/A	orl-rat 4g/kg
	Propionitrile	349	1395468	20000	99	0.2	2.02030	2.02045	20001.5	81.0	107-12-0	N/A	orl-rat 39mg/kg
	Tetrahydrofuran	380	SHBH8330	10000	99.9	0.2	1.00105	1.00120	10001.5	40.1	109-99-9	20 ppm (590mg/m3/8H)	orl-rat 1650mg/kg
11.	1,2,3,4-Tetramethylbenzene	491	AP01	2000	93	0.2	0.21506	0.21520	2001.3	8.7	488-23-3	N/A	orl-rat 6408mg/kg



	MSD RT
Name	(min.)
Methyl tert-butyl ether (MTBE)	13.56
Acrylonitrile	13.79
Di-isopropyl ether	15.44
Propionitrile	18.53
Tetrahydrofuran	20.17
Cyclohexane	20.58
1-Chlorobutane	20.83
Methylcyclohexane	24.84
1,4-Dioxane	26.84
Hexachloroethane	48.44
1,2,3,4-Tetramethylbenzene	51.62

> 99

200 ppm

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

	TICAL STANDARD DISSOLVED IN M	METHANOL	
Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr.	Emergency Telephone International	1-352-323-3500
	Hamden CT, 06514	Date Prepared/Revised	January 1, 2023
Section II - Hazards Ide	ntification		

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

H225 H370 P271 P302,332	Cau Use	se damag in ventila	able Liquid and Vapor e to organs ted area sh with soap and water Signal Word: DANGER	H301, 311, 331 H351 P280 P305,351,338	Toxic if swallowed, skin co Suspected of causing can Use gloves, eye protection If in eyes, remove contacts	cer /face sheild
Section III	- Compos	sition				
Component	s:		CAS#:	LD50 Oral - Rat	OSHA	PEL % (optional)

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

67-56-1

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

Methanol

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash with soap and water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

2,769 mg/kg

Section V. FIREFIGHTING MEASURES

Flammability	Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from
	heat/sparks/open flame/hot surface. No smoking.
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of
	ignition. Vapours accumulate to form explosive concentrations.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Clean up	Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Storage Conditions	Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed
	and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol 67-56-1 TWA 200 ppm

Skin notation TWA 200 ppm

Potential for skin absorption , ingestion and inhalation.

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

Section IX - Physical/Chemical Characteristics

Absolute Standards Inc.

PO Box 5585 Hamden, CT 06518-0585

Chemical stability Possibility of hazardous reactio Conditions to avoid	Heat, flames, spar	explosive mixturks, extreme tem		
Section X. STABILITY AN	ID REACTIVITY			
Appearance and Odor	CLEAR, COLORLE	SS LIQUID W	/ITH CHARACTERISTIC PUNGENT ODOR.	
Solubility in Water	COMPLETE			
Vapor Density (AIR = 1)		1.11	Evaporation rate (Butyl Acetate = 1)	4.6
Vapor Pressure (mm Hg)		96	Melting Point	-98°C
Boiling Point		65°C	Specific Gravity (H2O = 1)	0.79

Materials to avoid Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

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

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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)
 IATA

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

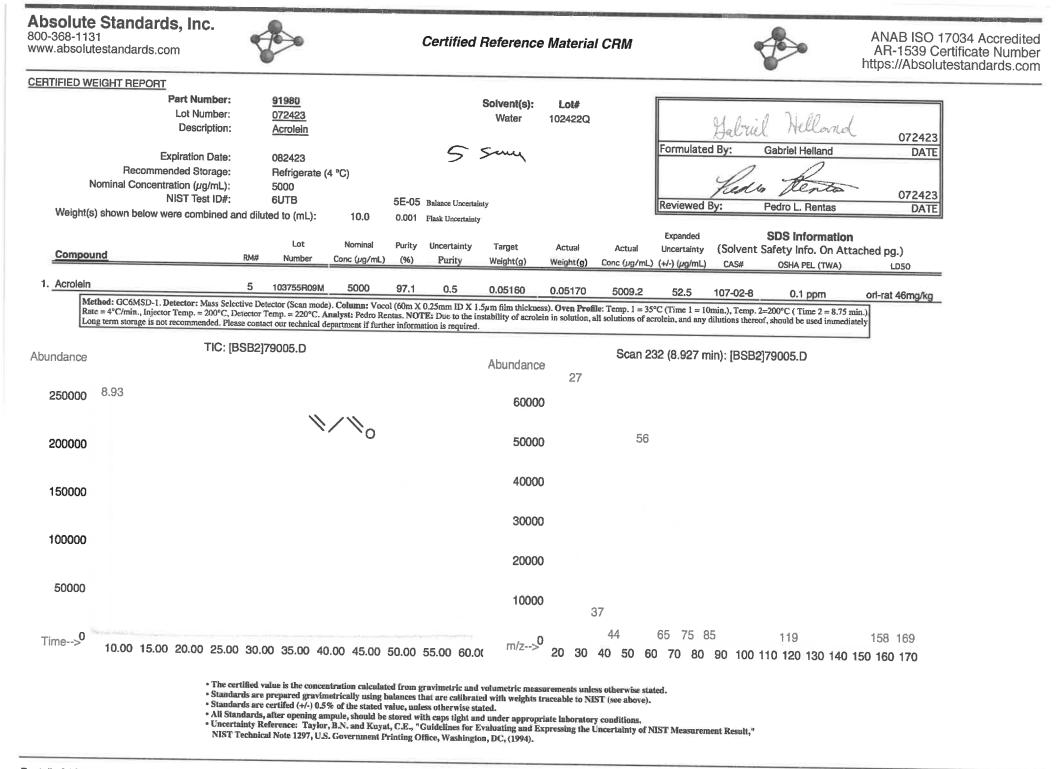
 Proper shipping name:
 Methanol

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

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Absolute Standards Inc.		н	PO Box 5585 amden, CT 06518-058	Phone: 203-281-2917 FAX: 203-281-2922		
		Safety Data S	Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Prod	uct and Co	mpany Identification				
IDENTITY Manufacturer's Address		CAL STANDARD DISS ABSOLUTE STAND 44 Rossotto Dr. Hamden CT, 06514	ARDS INC	Emergency Tele	ephone USA & CANADA ephone International Revised	1-800-535-5053 1-352-323-3500 May 1, 2022
Section II - Haz	ards Ident	ification				
P271 P302,332	lf on skin	GHS Classific entilated area , wash with soap and ord: DANGER		rdance with 29 CF H315 P280 P305,351,338	R 1910 (OSHA HCS) Causes skin and eye irr Use gloves, eye protect If in eyes, remove conta	ion/face sheild
Section III - Co	mposition					
Components (Sj Water	pecific Cher	nical Identity; Common	Name(s))	CAS#: 7732-18-	5	% (optional) > 97
	E: REFERE	Report For Other An INCE MATERIAL ASURES	nalytes Pres	ent At Trace Qu	iantities.	
General advice f inhaled n case of skin cor n case of eye con f swallowed		Consult a physician. Shou If inhaled, move person in Wash with soap and wate Rinse thoroughly with ple Do NOT induce vomiting.	nto fresh air. If not er. Consult a physen nty of water for at	t breathing, give artificia sician. t least 15 minutes and d	attendance.Move to safe area. al respiration. Consult a physicia consult a physician. ician.	n.
Section V. FIRE	FIGHTING	MEASURES				
uitable extinguisl rotective equipm lazardous Decom	ent for fire	Wear self containe		oam, dry chemical or ca aratus for fire fighting if		
ection VI. ACC		RELEASE MEASURES				
ersonal precaution nvironmental preca lean up		ignition. Vapours accumul Prevent further leakage or	ate to form explos spillage if safe to	sive concentrations. o do so. Do not let prod	Ensure adequate ventilation. Rer uct enter drains. sal according to local regulations	
ection VII. HAN	NDLING AN	D STORAGE				
recautions for safe handling Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. torage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.						
ection VIII. EXF	POSURE C	ONTROLS/PERSONAL		N		
ater		CAS#: 7732-18-5	TWA: 500 ppm			
ersonal protective e rold contact with sk		Respiratory protection clothing. Wash hands thorou	Handle with glove ughly after handlir	es. Gloves must be ins ng the product.	pected prior to use. Eye prote	ection.
	SICAL/CHI	EMICAL CHARACTER	ISTICS			
ection IX - PHY						
oiling Point			100°C	Specific Gravity (I Melting Point	H2O = 1)	1

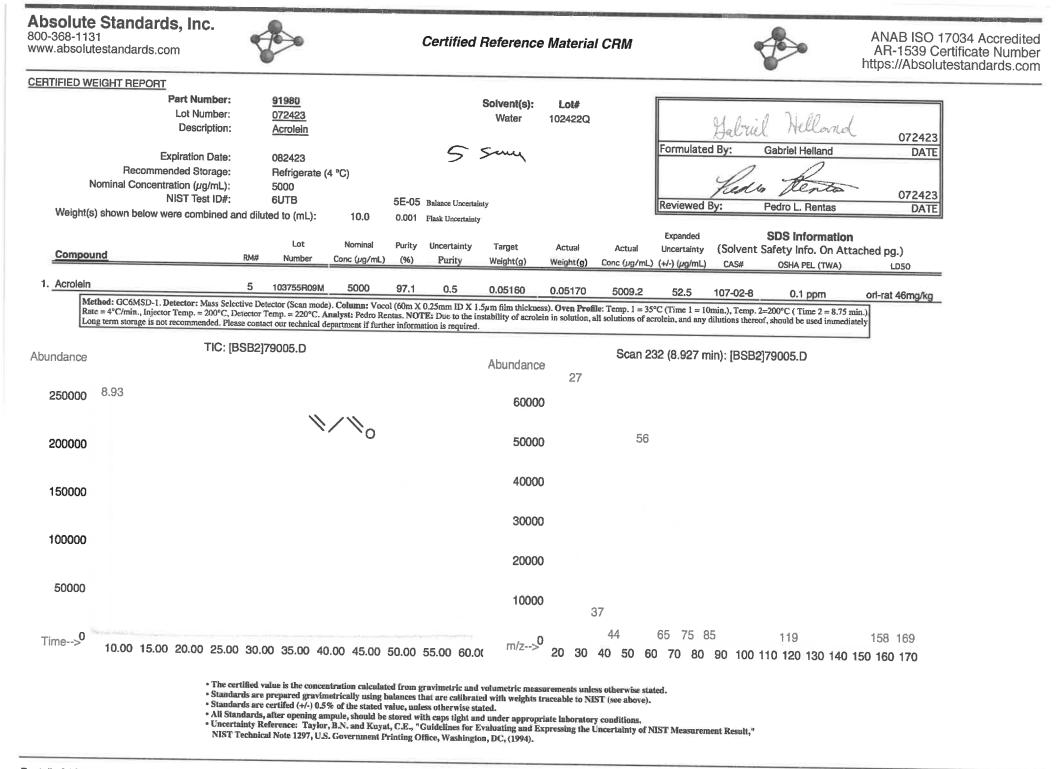
PO Box 5585 Hamden, CT 06518-0585

		NA		0°C
Vapor Density (AIR = 1)		NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water	Completely misci			
Appearance and Odor	CLEAR, COLORI	LESS LIQUID WIT	H SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND	REACTIVITY			
Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition produc	NA NA NA	recommended storag	e conditions.	
Section XI. TOXICOLOGIC	AL INFORMATION	۷		
LD50 Oral - Rat LC50 Inhalation - Rat LD50 Dermal - Guinea pig Causes skin irritation. Eye irritation	NA NA NA			
Section XII. ECOLOGICAL	INFORMATION			
LC50 NA EC50 NA				
Section XIII. DISPOSAL CO	ONSIDERATIONS			
Dispose with normal Laboratory S	Solvent Waste.			
Section XIV. TRANSPORT	INFORMATION			
DOT (US) Not dangerous goods Proper shipping name: Wate	ər		IATA Not dangerous goods Proper shipping name: Water	
Section XV. REGULATORY	(INFORMATION			

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

Section XVI. Misc. INFORMATION

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 duves 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. counters that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.



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		Safety Data S	Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Prod	uct and Co	mpany Identification				
IDENTITY Manufacturer's Address		CAL STANDARD DISS ABSOLUTE STAND 44 Rossotto Dr. Hamden CT, 06514	ARDS INC	Emergency Tele	ephone USA & CANADA ephone International Revised	1-800-535-5053 1-352-323-3500 May 1, 2022
Section II - Haz	ards Ident	ification				
P271 P302,332	lf on skin	GHS Classific entilated area , wash with soap and ord: DANGER		rdance with 29 CF H315 P280 P305,351,338	R 1910 (OSHA HCS) Causes skin and eye irr Use gloves, eye protect If in eyes, remove conta	ion/face sheild
Section III - Co	mposition					
Components (Sj Water	pecific Cher	nical Identity; Common	Name(s))	CAS#: 7732-18-	5	% (optional) > 97
	E: REFERE	Report For Other An INCE MATERIAL ASURES	nalytes Pres	ent At Trace Qu	iantities.	
General advice f inhaled n case of skin cor n case of eye con f swallowed		Consult a physician. Shou If inhaled, move person in Wash with soap and wate Rinse thoroughly with ple Do NOT induce vomiting.	nto fresh air. If not er. Consult a physen nty of water for at	t breathing, give artificia sician. t least 15 minutes and d	attendance.Move to safe area. al respiration. Consult a physicia consult a physician. ician.	n.
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uitable extinguisl rotective equipm lazardous Decom	ent for fire	Wear self containe		oam, dry chemical or ca aratus for fire fighting if		
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ection VIII. EXF	POSURE C	ONTROLS/PERSONAL		N		
ater		CAS#: 7732-18-5	TWA: 500 ppm			
ersonal protective e rold contact with sk		Respiratory protection clothing. Wash hands thorou	Handle with glove ughly after handlir	es. Gloves must be ins ng the product.	pected prior to use. Eye prote	ection.
	SICAL/CHI	EMICAL CHARACTER	ISTICS			
ection IX - PHY						
oiling Point			100°C	Specific Gravity (I Melting Point	H2O = 1)	1

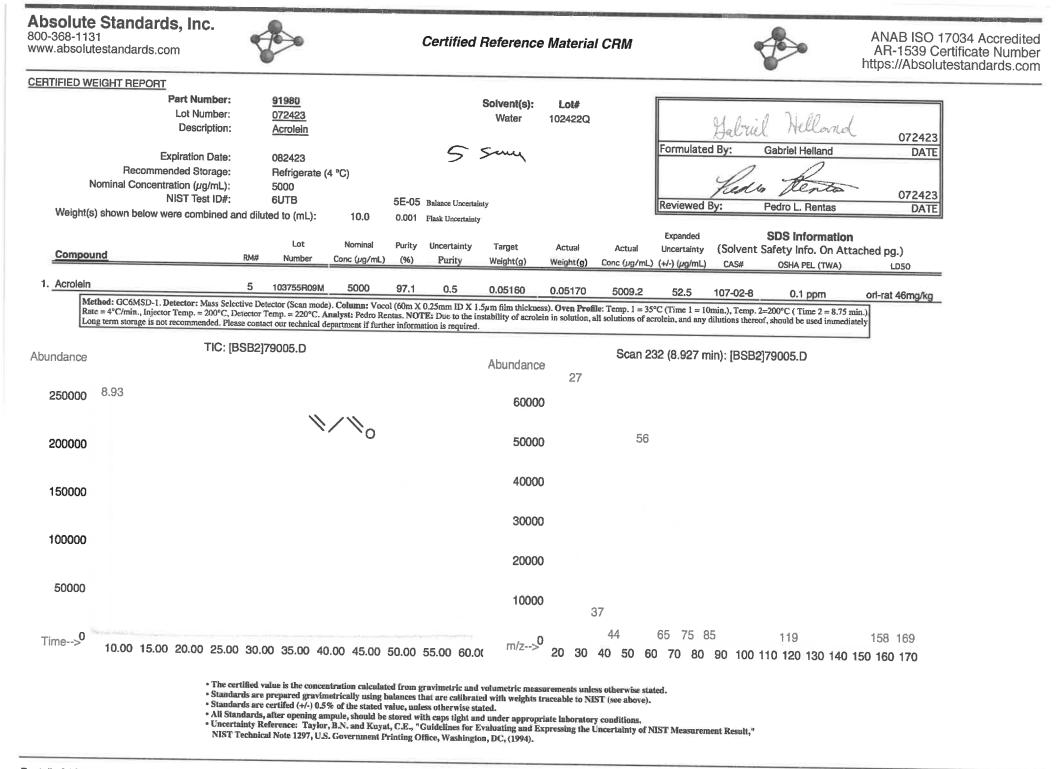
PO Box 5585 Hamden, CT 06518-0585

		NA		0°C
Vapor Density (AIR = 1)		NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water	Completely misci			
Appearance and Odor	CLEAR, COLORI	LESS LIQUID WIT	H SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND	REACTIVITY			
Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition produc	NA NA NA	recommended storag	e conditions.	
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LD50 Oral - Rat LC50 Inhalation - Rat LD50 Dermal - Guinea pig Causes skin irritation. Eye irritation	NA NA NA			
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LC50 NA EC50 NA				
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Section XIV. TRANSPORT	INFORMATION			
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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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Section III - Co	mposition					
Components (Sj Water	pecific Cher	nical Identity; Common	Name(s))	CAS#: 7732-18-	5	% (optional) > 97
	E: REFERE	Report For Other An INCE MATERIAL ASURES	nalytes Pres	ent At Trace Qu	iantities.	
General advice f inhaled n case of skin cor n case of eye con f swallowed		Consult a physician. Shou If inhaled, move person in Wash with soap and wate Rinse thoroughly with ple Do NOT induce vomiting.	nto fresh air. If not er. Consult a physen nty of water for at	t breathing, give artificia sician. t least 15 minutes and d	attendance.Move to safe area. al respiration. Consult a physicia consult a physician. ician.	n.
Section V. FIRE	FIGHTING	MEASURES				
uitable extinguisl rotective equipm lazardous Decom	ent for fire	Wear self containe		oam, dry chemical or ca aratus for fire fighting if		
ection VI. ACC		RELEASE MEASURES				
ersonal precaution nvironmental preca lean up		ignition. Vapours accumul Prevent further leakage or	ate to form explos spillage if safe to	sive concentrations. o do so. Do not let prod	Ensure adequate ventilation. Rer uct enter drains. sal according to local regulations	
ection VII. HAN	NDLING AN	D STORAGE				
recautions for safe handling Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. torage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.						
ection VIII. EXF	POSURE C	ONTROLS/PERSONAL		N		
ater		CAS#: 7732-18-5	TWA: 500 ppm			
ersonal protective e rold contact with sk		Respiratory protection clothing. Wash hands thorou	Handle with glove ughly after handlir	es. Gloves must be ins ng the product.	pected prior to use. Eye prote	ection.
	SICAL/CHI	EMICAL CHARACTER	ISTICS			
ection IX - PHY						
oiling Point			100°C	Specific Gravity (I Melting Point	H2O = 1)	1

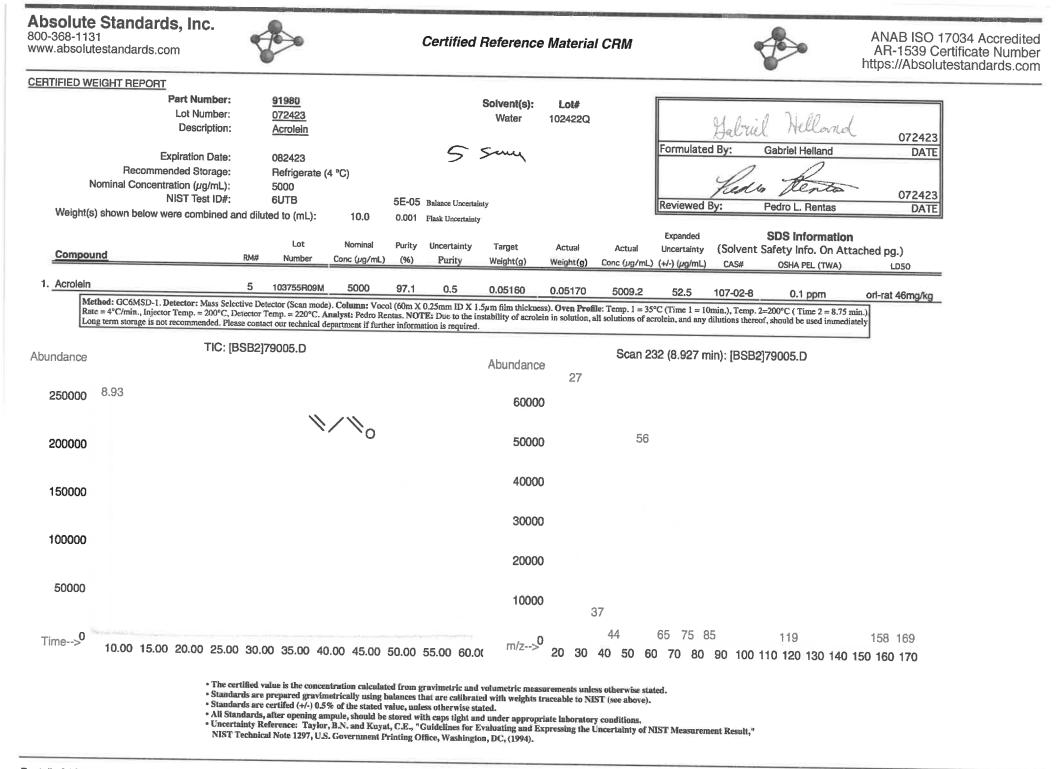
PO Box 5585 Hamden, CT 06518-0585

		NA		0°C
Vapor Density (AIR = 1)		NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water	Completely misci			
Appearance and Odor	CLEAR, COLORI	LESS LIQUID WIT	H SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND	REACTIVITY			
Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition produc	NA NA NA	recommended storag	e conditions.	
Section XI. TOXICOLOGIC	AL INFORMATION	۷		
LD50 Oral - Rat LC50 Inhalation - Rat LD50 Dermal - Guinea pig Causes skin irritation. Eye irritation	NA NA NA			
Section XII. ECOLOGICAL	INFORMATION			
LC50 NA EC50 NA				
Section XIII. DISPOSAL CO	ONSIDERATIONS			
Dispose with normal Laboratory S	Solvent Waste.			
Section XIV. TRANSPORT	INFORMATION			
DOT (US) Not dangerous goods Proper shipping name: Wate	ər		IATA Not dangerous goods Proper shipping name: Water	
Section XV. REGULATORY	(INFORMATION			

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

Section XVI. Misc. INFORMATION

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 duves 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. counters that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.



Absolute Standards Inc.		н	PO Box 5585 amden, CT 06518-058	Phone: 203-281-2917 FAX: 203-281-2922		
		Safety Data S	Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Prod	uct and Co	mpany Identification				
IDENTITY Manufacturer's Address		CAL STANDARD DISS ABSOLUTE STAND 44 Rossotto Dr. Hamden CT, 06514	ARDS INC	Emergency Tele	ephone USA & CANADA ephone International Revised	1-800-535-5053 1-352-323-3500 May 1, 2022
Section II - Haz	ards Ident	ification				
P271 P302,332	lf on skin	GHS Classific entilated area , wash with soap and ord: DANGER		rdance with 29 CF H315 P280 P305,351,338	R 1910 (OSHA HCS) Causes skin and eye irr Use gloves, eye protect If in eyes, remove conta	ion/face sheild
Section III - Co	mposition					
Components (Sj Water	pecific Cher	nical Identity; Common	Name(s))	CAS#: 7732-18-	5	% (optional) > 97
	E: REFERE	Report For Other An INCE MATERIAL ASURES	nalytes Pres	ent At Trace Qu	iantities.	
General advice f inhaled n case of skin cor n case of eye con f swallowed		Consult a physician. Shou If inhaled, move person in Wash with soap and wate Rinse thoroughly with ple Do NOT induce vomiting.	nto fresh air. If not er. Consult a physen nty of water for at	t breathing, give artificia sician. t least 15 minutes and d	attendance.Move to safe area. al respiration. Consult a physicia consult a physician. ician.	n.
Section V. FIRE	FIGHTING	MEASURES				
uitable extinguisl rotective equipm lazardous Decom	ent for fire	Wear self containe		oam, dry chemical or ca aratus for fire fighting if		
ection VI. ACC		RELEASE MEASURES				
ersonal precaution nvironmental preca lean up		ignition. Vapours accumul Prevent further leakage or	ate to form explos spillage if safe to	sive concentrations. do so. Do not let prod	Ensure adequate ventilation. Rer uct enter drains. sal according to local regulations	
ection VII. HAN	NDLING AN	D STORAGE				
recautions for safe handling Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. torage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.						
ection VIII. EXF	POSURE C	ONTROLS/PERSONAL		N		
ater		CAS#: 7732-18-5	TWA: 500 ppm			
ersonal protective e rold contact with sk		Respiratory protection clothing. Wash hands thorou	Handle with glove ughly after handlir	es. Gloves must be ins ng the product.	pected prior to use. Eye prote	ection.
	SICAL/CHI	EMICAL CHARACTER	ISTICS			
ection IX - PHY						
oiling Point			100°C	Specific Gravity (I Melting Point	H2O = 1)	1

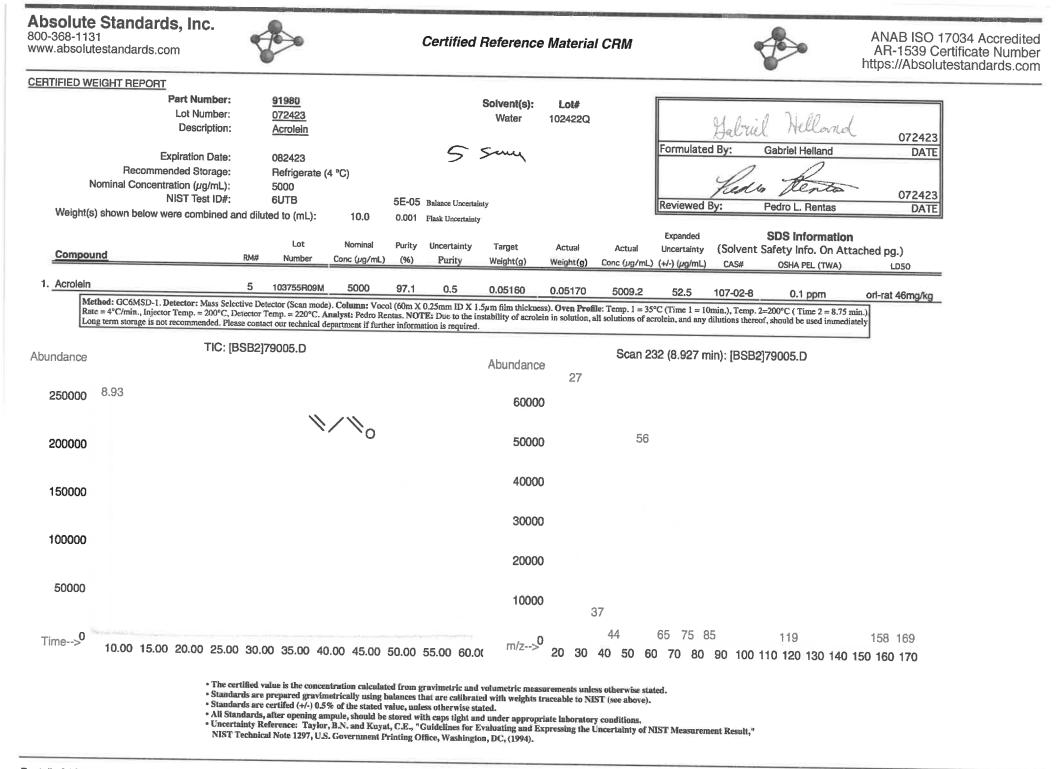
PO Box 5585 Hamden, CT 06518-0585

		NA		0°C
Vapor Density (AIR = 1)		NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water	Completely misci			
Appearance and Odor	CLEAR, COLORI	LESS LIQUID WIT	H SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND	REACTIVITY			
Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition produc	NA NA NA	recommended storag	e conditions.	
Section XI. TOXICOLOGIC	AL INFORMATION	۷		
LD50 Oral - Rat LC50 Inhalation - Rat LD50 Dermal - Guinea pig Causes skin irritation. Eye irritation	NA NA NA			
Section XII. ECOLOGICAL	INFORMATION			
LC50 NA EC50 NA				
Section XIII. DISPOSAL CO	ONSIDERATIONS			
Dispose with normal Laboratory S	Solvent Waste.			
Section XIV. TRANSPORT	INFORMATION			
DOT (US) Not dangerous goods Proper shipping name: Wate	ər		IATA Not dangerous goods Proper shipping name: Water	
Section XV. REGULATORY	(INFORMATION			

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

Section XVI. Misc. INFORMATION

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 duves 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. counters that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.



Absolute Standards Inc.		Inc.	PO Box 5585 Hamden, CT 06518-0585			Phone: 203-281-2917 FAX: 203-281-2922
		Safety Data S	Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Prod	uct and Co	mpany Identification				
IDENTITY Manufacturer's Address		CAL STANDARD DISS ABSOLUTE STAND 44 Rossotto Dr. Hamden CT, 06514	ARDS INC	Emergency Tele	ephone USA & CANADA ephone International Revised	1-800-535-5053 1-352-323-3500 May 1, 2022
Section II - Haz	ards Ident	ification				
P271 P302,332	lf on skin	GHS Classific entilated area , wash with soap and ord: DANGER		rdance with 29 CF H315 P280 P305,351,338	R 1910 (OSHA HCS) Causes skin and eye irr Use gloves, eye protect If in eyes, remove conta	ion/face sheild
Section III - Co	mposition					
Components (Sj Water	pecific Cher	nical Identity; Common	Name(s))	CAS#: 7732-18-	5	% (optional) > 97
	E: REFERE	Report For Other An INCE MATERIAL ASURES	nalytes Pres	ent At Trace Qu	iantities.	
General advice f inhaled n case of skin cor n case of eye con f swallowed		Consult a physician. Shou If inhaled, move person in Wash with soap and wate Rinse thoroughly with ple Do NOT induce vomiting.	nto fresh air. If not er. Consult a physen nty of water for at	t breathing, give artificia sician. t least 15 minutes and d	attendance.Move to safe area. al respiration. Consult a physicia consult a physician. ician.	n.
Section V. FIRE	FIGHTING	MEASURES				
uitable extinguisl rotective equipm lazardous Decom	ent for fire	Wear self containe		oam, dry chemical or ca aratus for fire fighting if		
ection VI. ACC		RELEASE MEASURES				
ersonal precaution nvironmental preca lean up		ignition. Vapours accumul Prevent further leakage or	ate to form explos spillage if safe to	sive concentrations. o do so. Do not let prod	Ensure adequate ventilation. Rer uct enter drains. sal according to local regulations	
ection VII. HAN	NDLING AN	D STORAGE				
recautions for safe torage Conditions	handling	Use ventilation Kee	ep away from sound	y and well-ventilated pl	r or mist. loking. Prevent the build up of el ace. Containers which are opene	ectrostatic charge. ed must be carefully resealed
ection VIII. EXF	POSURE C	ONTROLS/PERSONAL		N		
ater		CAS#: 7732-18-5	TWA: 500 ppm			
ersonal protective e rold contact with sk		Respiratory protection clothing. Wash hands thorou	Handle with glove ughly after handlir	es. Gloves must be ins ng the product.	pected prior to use. Eye prote	ection.
	SICAL/CHI	EMICAL CHARACTER	ISTICS			
ection IX - PHY						
oiling Point			100°C	Specific Gravity (I Melting Point	H2O = 1)	1

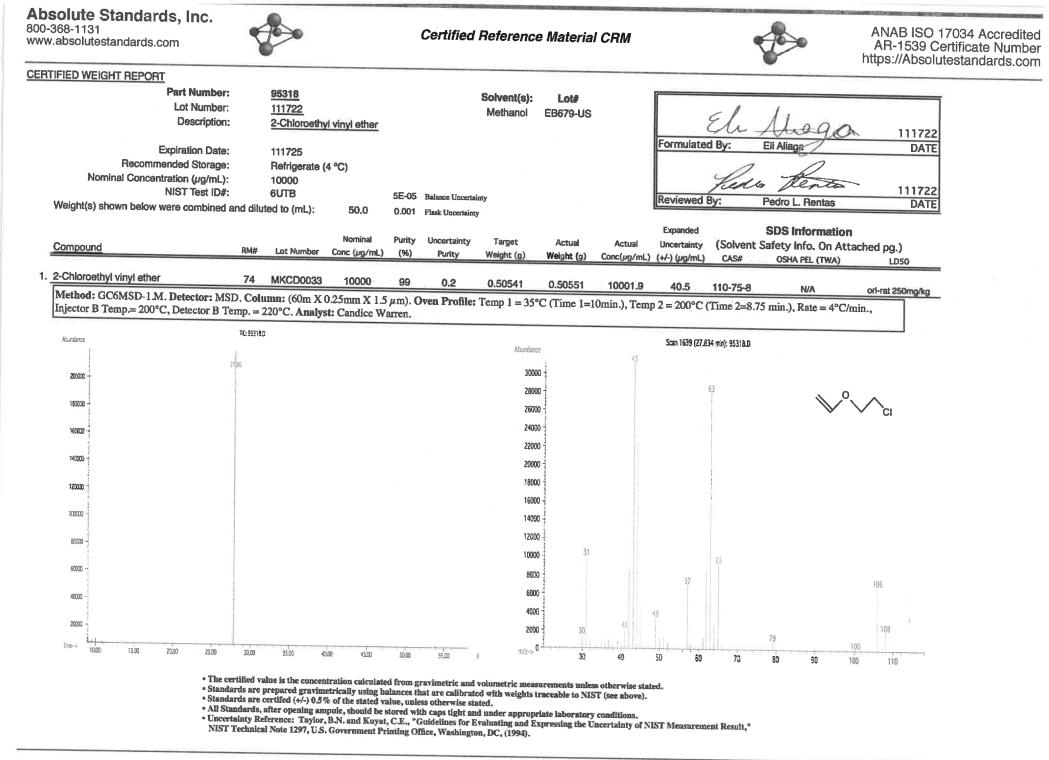
PO Box 5585 Hamden, CT 06518-0585

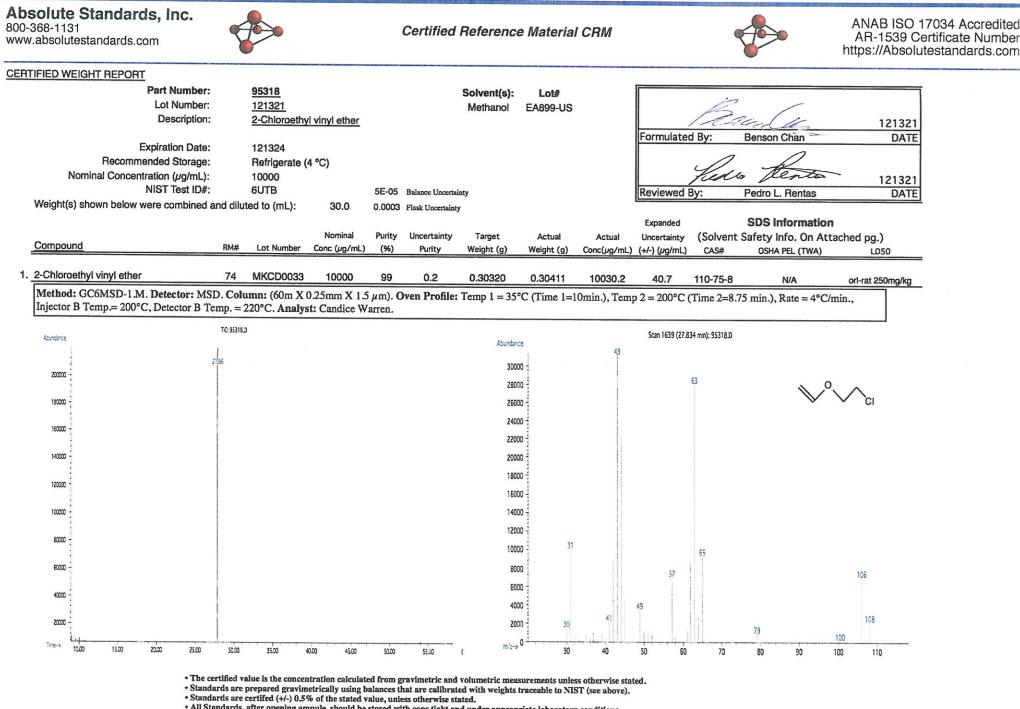
		NA		0°C
Vapor Density (AIR = 1)		NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water	Completely misci			
Appearance and Odor	CLEAR, COLORI	LESS LIQUID WIT	H SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND	REACTIVITY			
Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition produc	NA NA NA	recommended storag	e conditions.	
Section XI. TOXICOLOGIC	AL INFORMATION	۷		
LD50 Oral - Rat LC50 Inhalation - Rat LD50 Dermal - Guinea pig Causes skin irritation. Eye irritation	NA NA NA			
Section XII. ECOLOGICAL	INFORMATION			
LC50 NA EC50 NA				
Section XIII. DISPOSAL CO	ONSIDERATIONS			
Dispose with normal Laboratory S	Solvent Waste.			
Section XIV. TRANSPORT	INFORMATION			
DOT (US) Not dangerous goods Proper shipping name: Wate	ər		IATA Not dangerous goods Proper shipping name: Water	
Section XV. REGULATORY	(INFORMATION			

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

Section XVI. Misc. INFORMATION

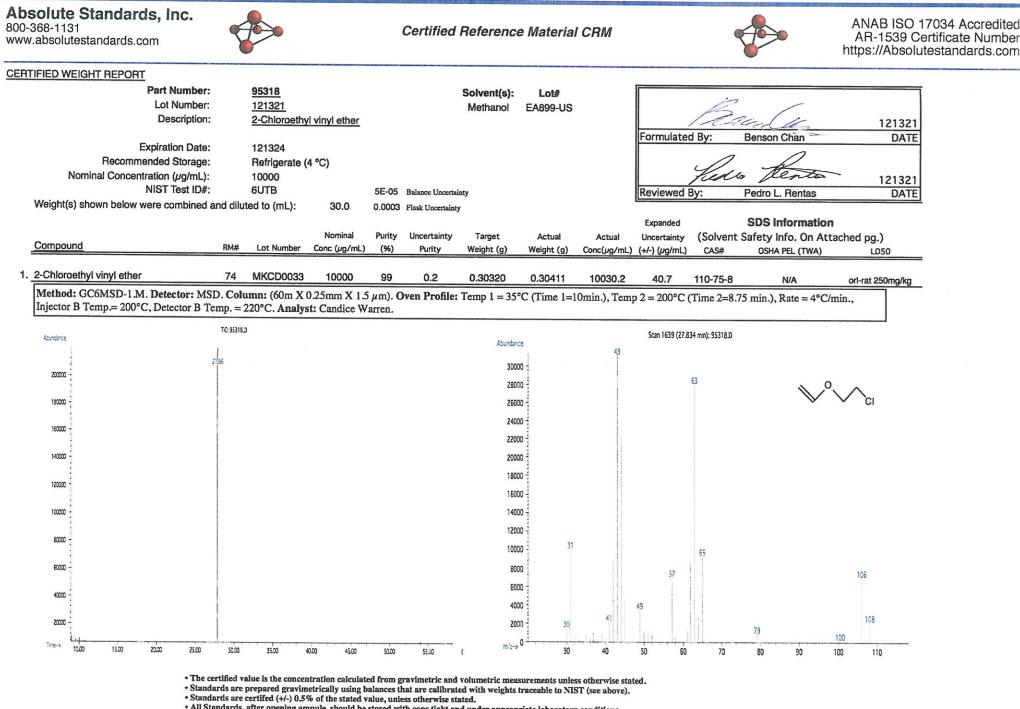
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All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.

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



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

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



CERTIFIED REFERENCE MATERIAL

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.

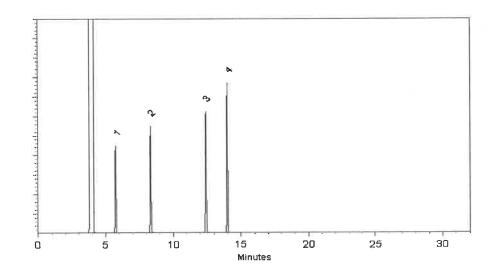
Catalog No. :	30006	Lot No.:	A0186767	
Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000 1mL/ampul)µg/mL, P&T Methanol/W	/ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	September 30, 2025	Storage:	0°C or colder	
_		Ship:	Ambient	

CERTIFIED VALUES

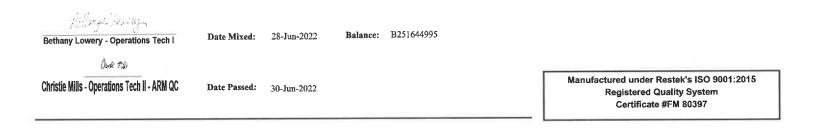
Elution Order		Сотро	und-	Grav. (weight/			Expanded (95% C.L.;	Uncertainty K=2)	
1	Acetone CAS # Purity	67-64-1 99%	(Lot MKCQ7914)	5,046.8	µg/mL	+/- +/- +/-	29.3427 304.4978 305.2207	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	2-Butano CAS # Purity	one (MEK) 78-93-3 99%	(Lot SHBN2844)	5,048.8	µg/mL	+/- +/- +/-	29.3544 304.6185 305.3417	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	4-Methy CAS # Purity	1-2-pentanone (MIBK) 108-10-1 99%	(Lot SHBN3601)	5,045.0	µg/mL	+/- +/- +/-	29.3321 304.3872 305.1099	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	2-Hexan CAS # Purity	one 591-78-6 99%	(Lot MKCQ6663)	5,045.3	µg/mL	+/- +/- +/-	29.3340 304.4073 305.1300	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	D&TMO	thanol/Water (90.10)							

Solvent: P&T Methanol/Water (90:10) CAS # 67-56-1/7732-18-5 Purity 99% Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type:

FID



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



General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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



CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



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

www.restek.com



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

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

Catalog No. :	30470	Lot No.:	A0181905	
Description :	tert-Butanol Standard			
	tert-Butanol Std 50,000µg/m	L, P&T Methanol, 1mL/an	որսն	
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	second in the second second	
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:

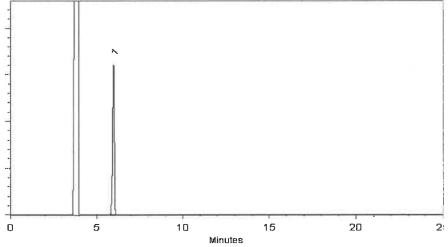
 200°C

 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.



CERTIFIED REFERENCE MATERIAL

4 V

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.

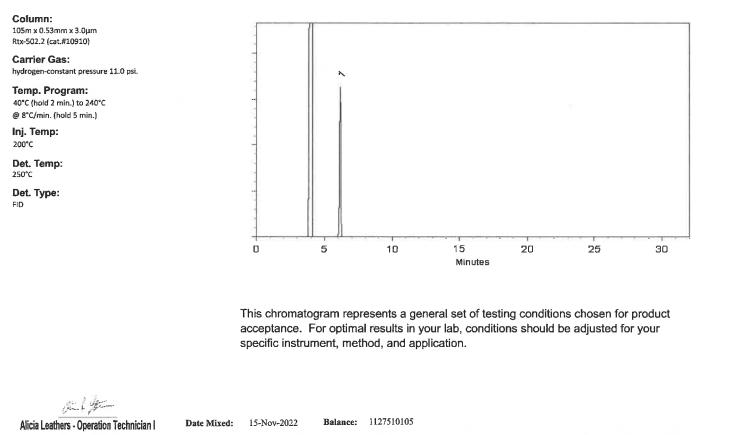
Catalog No. :	30470	Lot No.:	A0191703	
Description :	tert-Butanol Standard			
	tert-Butanol Std 50,000µg/mL, F	P&T Methanol, 1mL/an	npul	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	November 30, 2025	Storage:	0°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

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

CAS# 67-56-1

Purity 99%



Spale & Barrisk

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 17-Nov-2022

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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



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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.

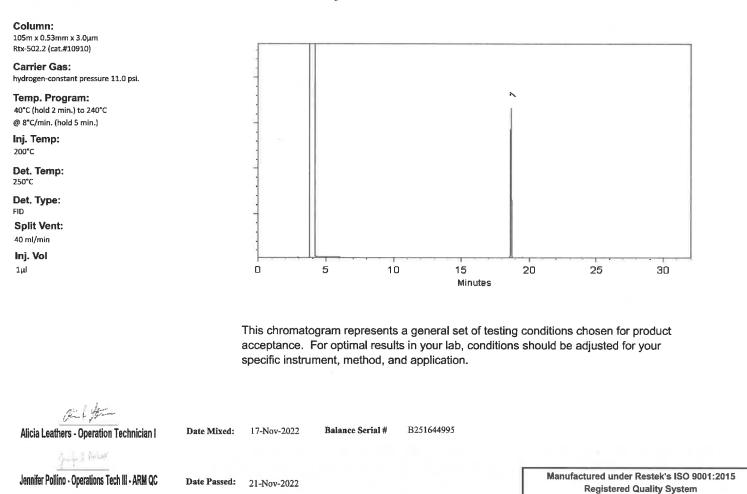
 Solvent:
 P&T Methanol

 CAS #
 67-56-1

 Purity
 99%



Quality Confirmation Test





Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

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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.
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 correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
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k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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Manufacturing Notes:

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Catalog No. :	30225	Lot No.: <u>A0193071</u>					
Description :	Bromochloromethane Standard						
	Bromochloromethane 2000µg/mL, 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%







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$U_{combined uncertainty} = k$	$u^4 + u^2 + u^2$	
COMPONING CHECKING	gravimetric homogeneity "storage stability "shipping stability	
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k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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Manufacturing Notes:

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

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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%







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COMPONING CHECKING	gravimetric homogeneity "storage stability "shipping stability	
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Catalog No. :	30042	Lot No.:	A0194279	
Description :	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

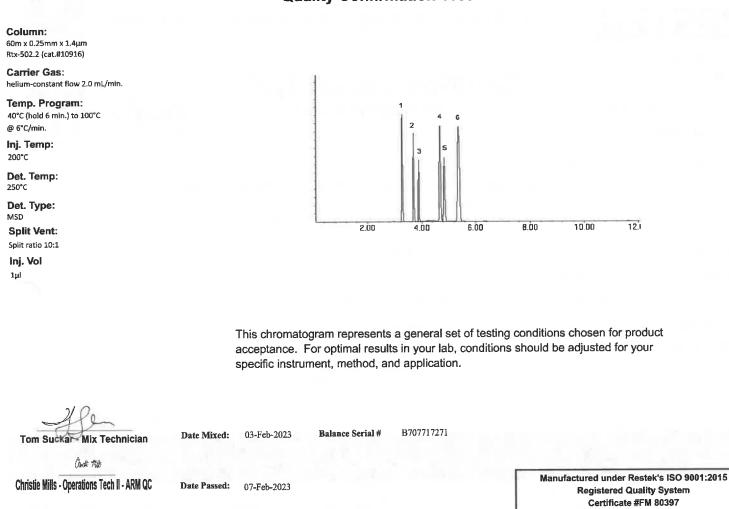
Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Dichlorodifluoromethane (CFC-12)	75-71-8	00012554	99%	2,001.5 µg/mL	+/- 112.7231
2	Chloromethane (methyl chloride)	74-87-3	SHBK6571	99%	2,001.2 μg/mL	+/- 112.5863
3	Vinyl chloride	75-01-4	00015559	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%





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Catalog No. :	30042	Lot No.:	A0194279	
Description :	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	

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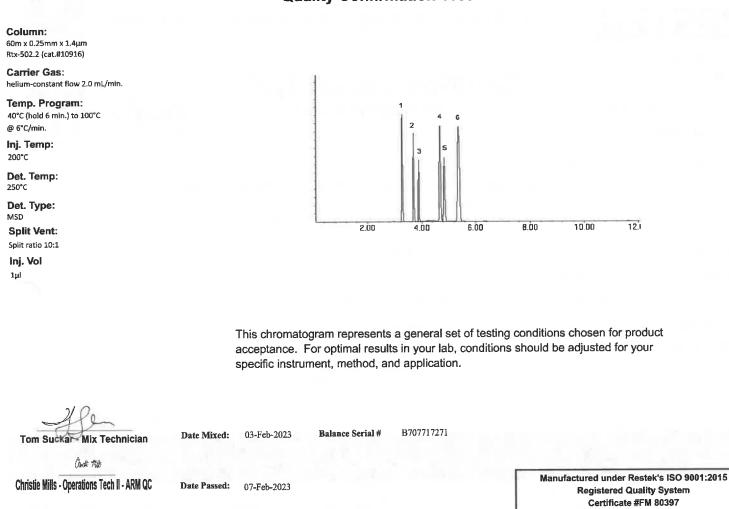
Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Dichlorodifluoromethane (CFC-12)	75-71-8	00012554	99%	2,001.5 µg/mL	+/- 112.7231
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6	Trichlorofluoromethane (CFC-11)	75-69-4	MKCL8411	99%	2,000.8 μg/mL	+/- 112.6473

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

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

Purity 99%





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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

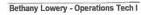
Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type: FID Split Vent: 40 ml/min Inj. Vol 1μΙ This chromatogram represents a general set of 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



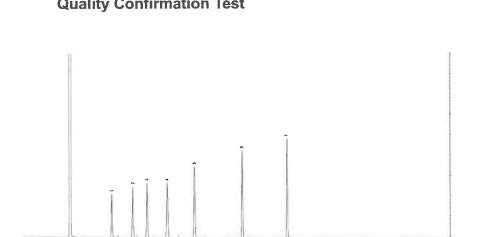
John Jidgett John Lidgett - AD Chemist

Date Passed: 29-Mar-2023

21-Mar-2023

Date Mixed:

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





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

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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
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

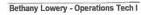
Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type: FID Split Vent: 40 ml/min Inj. Vol 1μΙ This chromatogram represents a general set of 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



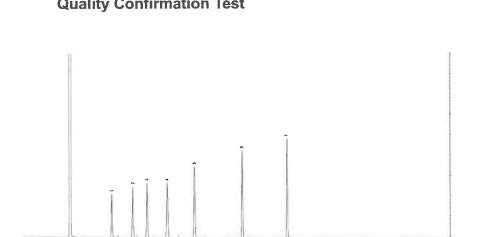
John Jidgett John Lidgett - AD Chemist

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%.

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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. :	<u>555582</u> Lot No.: <u>A0196865</u>					
Description :	Custom 8260A/B Surrogate	Mix				
	Custom 8260A/B Surrogate Mix 25,000µg/mL, P&T Methanol, 1mL/ampul					
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	April 30, 2026	Storage:	10°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

Componen t#	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dichloroethane-d4	17060-07-0	PR-32845	99% 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

11-Apr-2023



Expiration Notes:

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ISO/IEC 17 025 Acared Testing Laboratory Certificate #3222.02

Certificate of Analysis

gravimetric

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Description :	Custom 8260A/B Surrogate	Mix				
	Custom 8260A/B Surrogate Mix 25,000µg/mL, P&T Methanol, 1mL/ampul					
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	April 30, 2026	Storage:	10°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

Componen t#	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dichloroethane-d4	17060-07-0	PR-32845	99% 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

11-Apr-2023



Expiration Notes:

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. :	30042	Lot No.:	A0197644			
Description :	502.2 Calibration Mix #1					
	502.2 Calibration Mix #1 2,000µg/mL, P&T Methanol, 1mL/ampul					
Container Size :	2 mL	- Pkg Amt:	> 1 mL			
Expiration Date :	January 31, 2030	Storage:	0°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

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

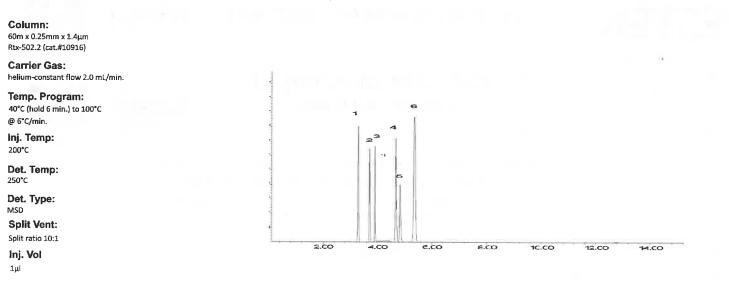
* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol

> CAS # 67-56-1

Purity 99%





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.



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



Expiration Notes:

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Purity Notes:

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 parent compound in solution.
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Certified Uncertainty Value Notes:

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MEC 17025 Accredited Testing Laboratory Certificate #3222.02

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Catalog No. :	30489	Lot No.:	A0199224
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 :	December 31, 2024	Storage:	-20°C or colder

CERTIFIED VALUES

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

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

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

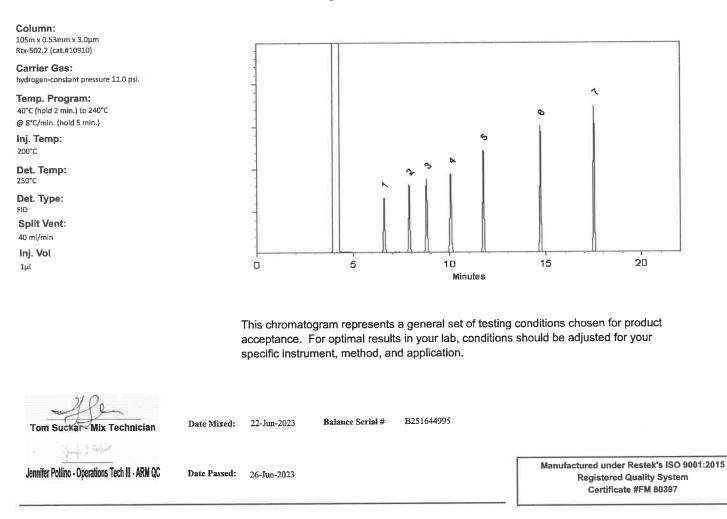
Tech Tips:

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



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

Quality Confirmation Test





Expiration Notes:

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Manufacturing Notes:

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using NIST traceable weights, and/or dilutions with Class A glassware.

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Certificate of Analysis

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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. :	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%



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

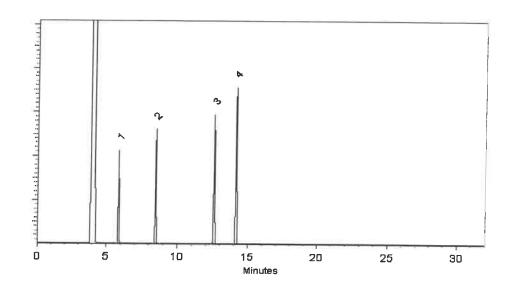
Det. Temp: 250°C

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.

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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.
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Certificate of Analysis

chromatographic plus





FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. :	30006	Lot No.:	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%



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

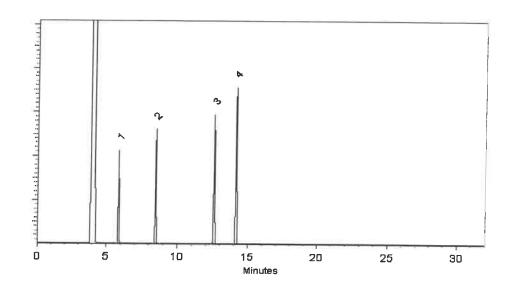
Det. Temp: 250°C

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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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus





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Catalog No. :	30006	D006 Lot No.: <u>A0200785</u>						
Description :	VOA Calibration Mix #1							
	VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10), 1mL/ampul							
Container Size :	2 mL	Pkg Amt:	> 1 mL					
Expiration Date :	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%



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

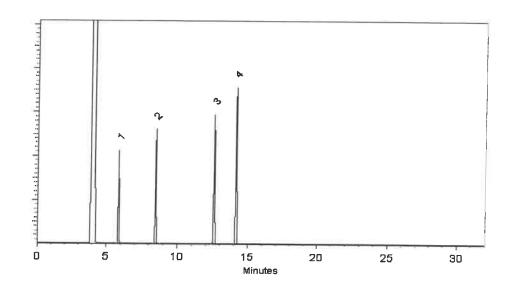
Det. Temp: 250°C

Det. Type: FID

Split Vent: 40 ml/min

lnj. Vol

1µ!



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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

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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:

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. :	555408-FL	Lot No.:	A0205177
Description :	Custom Vinyl Acetate Standard		a
	Custom Vinyl Acetate Standard 8,00	00µg/mL, P&T Meth	nanol, 1mL/ampul
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	June 30, 2025	Storage:	-20°C or colder
Handling:	This product is photosensitive.	Ship:	On Ice

CERTIFIED VALUES

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

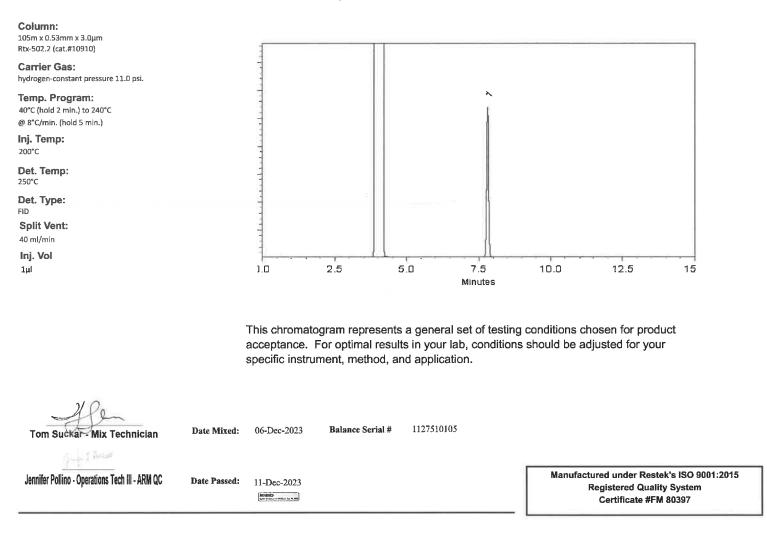
Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

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.
- 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
 parent compound in solution.
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uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability
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- 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.

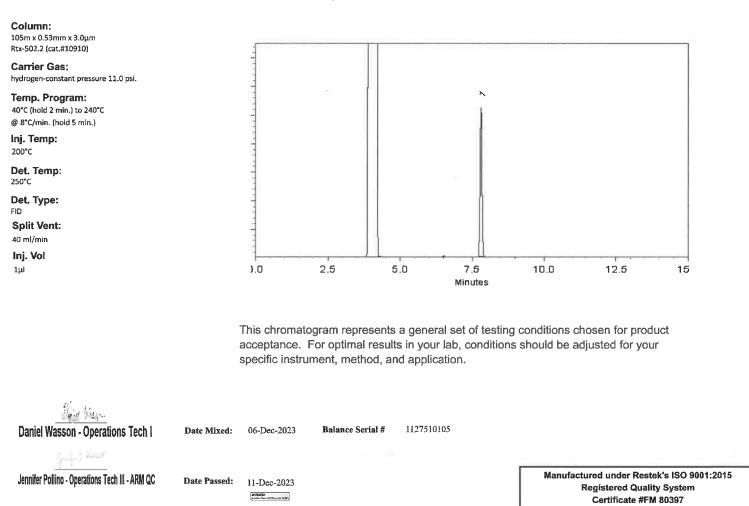
Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

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:

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

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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			
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.

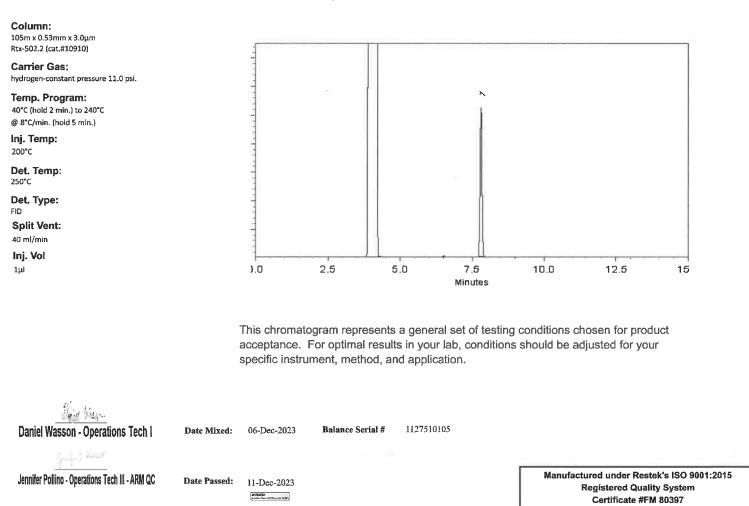
Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

Tech Tips:

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CERTIFIED REFERENCE MATERIAL



Certificate of Analysis gravimetric

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Catalog No. :	555581	Lot No.:	A0210184
Description :	Custom 8260 Internal Standa	rd Mix	
	Custom 8260 Internal Standa 1mL/ampul	rd Mix 25,000µg/mL, P&	T Methanol,
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	April 30, 2027	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	1,4-Dichlorobenzene-d4	3855-82-1	PR-30447	99% 2	25,212.0 μg/mL	+/- 1,427.8857
2	1,4-Difluorobenzene	540-36-3	MKCS8657	99% 2	25,220.0 μg/mL	+/- 1,428.3388
3	Chlorobenzene-d5	3114-55-4	PR-31132	99% 2	25,116.0 μg/mL	+/- 1,422.4487
4	Pentafluorobenzene	363-72-4	MKCR9383	99% 2	25,180.0 μg/mL	+/- 1,426.0734
Solvent:	P&T Methanol					

Solvent: a i Methanol CAS # 67-56-1 Purity 99%

Mm Futhi Manufactured under Restek's ISO 9001:2015 **Registered Quality System** Date Mixed: 11-Apr-2024 Balance: 1127510105 John Friedline - Operations Technician I Certificate #FM 80397 REVIEWED By Barries Common of 2.50 prov. Apr. 75, 3544



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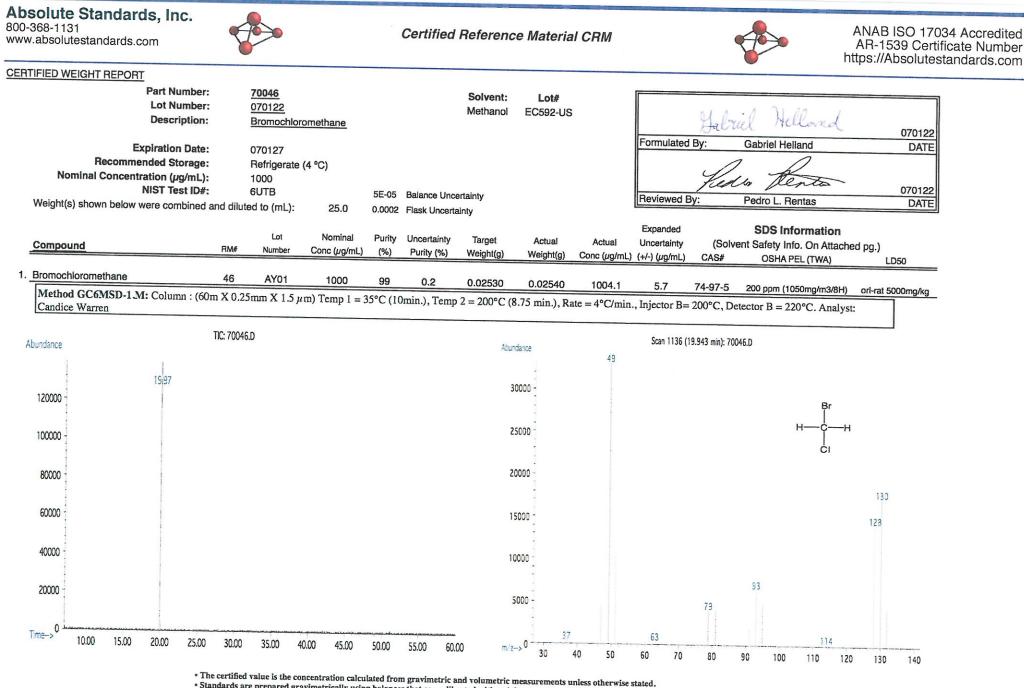
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Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).

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

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

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

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)	≤ 0. 10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

Certificate of Analysis

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

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

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

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
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Titrable Base (µeq/g)	≤ 0. 10	0.03
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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

Certificate of Analysis

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

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

James Techie

Jamie Ethier Vice President Global Quality

Avantor



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