

Prep Standard - Chemical Standard Summary

Order ID : 03645

Test : VOCMS Group1

Prepbatch ID :

Sequence ID/Qc Batch ID: VD071723,vd071823,vn071823,

Standard ID :

VP118161,VP118162,VP118164,VP119199,VP119200,VP120190,VP120390,VP120540,VP121045,VP121351,VP121353,VP121396,VP121532,VP121534,VP121535,VP121536,VP121538,VP121539,VP121541,VP121576,VP121616,VP1216 91,VP121778,VP121785,VP121786,VP121788,VP121789,VP121790,VP121794,VP121817,VP121818,VP121819,VP12 1821,VP121824,VP121825,VP121827,

Chemical ID :

LOD-VP121793,LOQ-VP121828,MDL-VP121826,V10601,V12006,V12012,V12081,V12082,V12226,V12229,V12695,V12 761,V12764,V12765,V12767,V12768,V12783,V12784,V12785,V12786,V12787,V12788,V12789,V12963,V13088,V13089, V13104,V13196,V13199,V13217,V13222,V13302,V13331,V13343,V13344,V13494,V13495,V13520,V13521,V13523,V1 3546,V13558,V13559,V13577,V13578,V13641,V13644,V13655,V13657,V13658,V13661,V13870,V13871,V13872,V1387 5,V13876,W2606,

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<u>Recipe</u> <u>ID</u> 1810	NAME 8260 Working Std(2-CVE)-800ppm	<u>NO.</u> VP118161	Prep Date 01/24/2023	Expiration Date 07/24/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 01/25/2023
<u>FROM</u>	1.00000ml of V12783 + 1.00000ml of	V12784 +	1.00000ml of '	V12785 + 1.000	000ml of V1278	6 = Final Quan	tity: 50.000 m	
Recipe								

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Mahesh Dadoda
1811	8260 Working	<u>VP118162</u>	01/24/2023	07/24/2023	Semsettin	None	None	
	Std(2-CVE)-500ppm				Yesilyurt			01/25/2023
FROM	7.50000ml of V13217 + 12.50000ml	of VP11816	1 = Final Qua	ntity: 20.000 n	nl			

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Recipe ID 1813	NAME 8260 Working Std(2-CVE)-50ppm	<u>NO.</u> VP118164	Prep Date 01/24/2023	Expiration Date 07/24/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 01/25/2023
<u>FROM</u>	9.37500ml of V13217 + 0.62500ml of	I f VP118161	= Final Quar	ntity: 10.000 ml				

<u>Recipe</u>				Expiration	Prepared			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipetteID	Mahesh Dadoda
252	8260 Working STD (BCM)-First source, 100PPM	<u>VP119199</u>	03/15/2023	09/10/2023	Semsettin Yesilyurt	None	None	03/17/2023
FROM	0.25000ml of V12765 + 1.00000ml of	f V12761 + 2	23.75000ml of	f V13222 = Fin	al Quantity: 25.	000 ml		

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Recipe ID 254	NAME 8260 Working STD (BCM)-First source, 10PPM	<u>NO.</u> VP119200	Prep Date 03/15/2023	Expiration Date 09/10/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 03/17/2023
FROM	0.05000ml of V12765 + 9.95000ml of	V13222 =	Final Quantity	/: 10.000 ml				

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	<u>Prep Date</u>	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u> Mahesh Dadoda
249	8260 Surrogate, 100PPM	<u>VP120190</u>	04/28/2023	09/15/2023	Semsettin Yesilyurt	None	None	05/02/2023
<u>FROM</u>	0.10000ml of V12006 + 24.90000ml	of V13657 =	= Final Quanti	ty: 25.000 ml				

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<u>Recipe</u> <u>ID</u> 1917	NAME 8260 Internal standard 50 ppm	<u>NO.</u> VP120390	Prep Date 05/05/2023	Expiration Date 10/27/2023	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 05/09/2023
<u>FROM</u>	0.05000ml of V12081 + 24.95000ml of	of V13657 =	= Final Quanti	ity: 25.000 ml				

<u>Recipe</u> <u>ID</u>	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u> Mahesh Dadoda
719	8260 Working STD (BCM)-First source, 400PPM	<u>VP120540</u>	05/16/2023	11/16/2023	Semsettin Yesilyurt	None	None	05/17/2023
<u>FROM</u>	1.00000ml of V12768 + 1.50000ml of	f V12764 + 1	1.50000ml of ^v	V12767 + 16.00	0000ml of V136	58 = Final Qua	ntity: 20.000 n	nl

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Recipe ID 218	NAME BFB, 25PPM	<u>NO.</u> VP121045	Prep Date 06/08/2023	Expiration Date 12/08/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 06/09/2023
<u>FROM</u>	0.50000ml of V10601 + 49.50000ml o	of V13655 =	= Final Quanti	ty: 50.000 ml				

Recipe ID	NAME	<u>NO.</u>	Prep Date		<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	PipettelD	<u>Supervised By</u> Mahesh Dadoda
259	8260 Calibration Working STD Mix-Second source, 160PPM	<u>VP121351</u>	06/23/2023	08/05/2023	Semsettin Yesilyurt	None	None	06/28/2023
FROM	0.16000ml of V12229 + 0.80000ml o 0.80000ml of V13661 + 1.60000ml o						of V13331 +	

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Recipe ID 820	NAME 8260 Calibration Working STD Mix-Second source, 10PPM	<u>NO.</u> VP121353	Prep Date 06/23/2023	Expiration Date 08/05/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 06/28/2023
FROM	4.68750ml of V13655 + 0.31250ml of	7 VP121351	= Final Quar	ntity: 5.000 ml				

<u>Recipe</u> <u>ID</u> 617	NAME 8260 Surrogate, 400PPM	<u>NO.</u> VP121396	Prep Date 06/26/2023	Expiration Date 12/26/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 06/28/2023
FROM	0.80000ml of V12012 + 49.20000ml of	I of V13641 :	Final Quanti	ty: 50.000 ml	loonyart			00/20/2023

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Recipe ID 263	(Acrolein)-Second source,	<u>NO.</u> VP121532	Prep Date 07/05/2023	Expiration Date 07/27/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 07/07/2023
<u>FROM</u>	800PPM 0.60000ml of V13876 + 1.00000ml of	l f V13875 + a	l 8.40000ml of '	V13641 = Fina	-	l 00 ml	<u> </u>	07/07/2023
Pacina				Expiration	Bronarad			Supervised By

<u>Recipe</u>				Expiration	Prepared			Supervised By
ID	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipettelD	Mahesh Dadoda
826	8260 Working STD	<u>VP121534</u>	07/05/2023	07/27/2023	Semsettin	None	None	
	(Acrolein)-Second source, 50PPM				Yesilyurt			07/07/2023
FROM	4.68750ml of V13641 + 0.31250ml of	VP121532	= Final Quar	ntity: 5.000 ml				

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Recipe ID 51	NAME 8260 Working STD (Acrolein) -first source, 800PPM	<u>NO.</u> VP121535	Prep Date 07/05/2023	Expiration Date 07/28/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 07/07/2023
FROM	1.00000ml of V13872 + 1.50000ml of	FV13870 + 1	1.50000ml of '	V13871 + 21.00		41 = Final Qua	ntity: 25.000 r	
Recipe				Expiration	Prepared			Supervised By

<u>Recipe</u>				Expiration	<u>Prepared</u>			<u>Supervised By</u>
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipetteID	Mahesh Dadoda
56	8260 Working STD (Acrolein) -first source, 500PPM	<u>VP121536</u>	07/05/2023	07/28/2023	Semsettin Yesilyurt	None	None	07/07/2023
FROM	7.50000ml of V13641 + 12.50000ml of	of VP12153	5 = Final Qua	antity: 20.000 n	าไ			

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Recipe ID 181	NAME 8260 Working STD (Acrolein)-First source, 50PPM	<u>NO.</u> VP121538	Prep Date 07/05/2023	Expiration Date 07/28/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 07/07/2023
<u>FROM</u>	9.87500ml of V13641 + 0.62500ml of	VP121535	= Final Quar	ntity: 10.000 ml				

<u>Recipe</u>				Expiration	Prepared			Supervised By
ID	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipetteID	Mahesh Dadoda
1817	8260 Working Std(2-CVE)-SS, 800ppm	<u>VP121539</u>	07/05/2023	01/05/2024	Semsettin Yesilyurt	None	None	07/07/2023
FROM	0.60000ml of V13578 + 1.00000ml of	f V13577 + ⁻	18.40000ml of	f V13644 = Fin	al Quantity: 20.	000 ml		

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Recipe ID 1818	NAME 8260 Working Std(2-CVE)-SS, 50ppm	<u>NO.</u> VP121541	Prep Date 07/05/2023	Expiration Date 01/05/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 07/07/2023
<u>FROM</u>	9.37500ml of V13644 + 0.62500ml of	VP121539	= Final Quar	ntity: 10.000 ml				

<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>PipetteID</u>	<u>Supervised By</u> Mahesh Dadoda
247	8260 Internal Standard, 250PPM	<u>VP121576</u>	07/07/2023	12/26/2023	Semsettin Yesilyurt	None	None	07/07/2023
FROM	0.25000ml of V12082 + 24.75000ml	of V13644 :	= Final Quanti	ty: 25.000 ml				

Std(2-CVE)-800ppm

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VOC STANDARD PREPARATION LOG

Recipe ID 825	NAME 8260 Working STD (BCM)-Second source, 10PPM	<u>NO.</u> VP121616	Prep Date 07/10/2023	Expiration Date 01/05/2024	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipettelD None	Supervised By Mahesh Dadoda 07/11/2023
FROM	0.05000ml of V12963 + 4.95000ml of	V13644 =	Final Quantity	/: 5.000 ml				
Recipe ID 1810	NAME 8260 Working	<u>NO.</u> <u>VP121691</u>	Prep Date 07/13/2023	Expiration Date 01/05/2024	Prepared By Semsettin	<u>ScaleID</u> None	PipettelD None	<u>Supervised By</u> John Carlone

FROM	0.20000ml of V12784 + 1.00000ml of	V12787 +	1.00000ml of	V12788 + 1.00	000ml of V1278	9 + 36.80000ml	l of V13644 =	Final
	Quantity: 40.000 ml							

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07/17/2023

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VOC STANDARD PREPARATION LOG

Recipe ID 732 FROM	NAME BFB TUNE CHECK - SOIL 4.99800ml of W2606 + 0.00200ml of	<u>NO.</u> VP121778 VP121045	Prep Date 07/17/2023 = Final Quan	Expiration Date 07/18/2023 tity: 5.000 ml	Prepared By Mahesh Dadoda	<u>ScaleID</u> None	PipettelD None	Supervised By John Carlone 07/20/2023
Recipe ID 257	NAME 8260 Calibration Working STD Mix-First source, 160PPM	<u>NO.</u> VP121785	Prep Date 07/17/2023	Expiration Date 08/26/2023	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/20/2023

 FROM
 0.40000ml of V12226 + 0.50000ml of V13089 + 0.50000ml of V13199 + 0.50000ml of V13344 + 0.50000ml of V13495 + 0.50000ml of V13559 + 1.00000ml of V13523 + 1.50000ml of V13088 + 1.50000ml of V13196 + 1.50000ml of V13343 + 1.50000ml of V13494 + 1.50000ml of V13520 + 1.50000ml of V13521 + 1.50000ml of V13558 + 10.60000ml of V13644 = Final Quantity: 25.000 ml

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VOC STANDARD PREPARATION LOG

Recipe ID 244	NAME 8260 Calibration Working STD Mix-First source, 100PPM	<u>NO.</u> VP121786	Prep Date 07/17/2023	Expiration Date 08/26/2023	<u>Prepared</u> <u>By</u> Semsettin Yesilyurt	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/20/2023
FROM	5.62500ml of V13644 + 9.37500ml of	VP121785	= Final Quar	ntity: 15.000 ml				

Recipe			/	Expiration	Prepared			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipetteID	Mahesh Dadoda
246	8260 Calibration Working STD Mix-First source, 10PPM	<u>VP121788</u>	07/17/2023	08/26/2023	Semsettin Yesilyurt	None	None	07/20/2023
<u>FROM</u>	9.37500ml of V13644 + 0.62500ml o	f VP121785	= Final Quar	ntity: 10.000 m	l			

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Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP121789	Prep Date 07/17/2023	Expiration Date 07/18/2023	Prepared By Mahesh Dadoda	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By John Carlone 07/20/2023
FROM	4.98000ml of W2606 + 0.00250ml of VP121536 + 0.00250ml of VP121786					P120190 + 0.00	250ml of	

<u>Recipe</u> <u>ID</u> 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP121790	Prep Date 07/17/2023	Expiration Date 07/18/2023	<u>Prepared</u> <u>By</u> Mahesh Dadoda	<u>ScaleID</u> None	PipettelD None	Supervised By John Carlone 07/20/2023
<u>FROM</u>	4.98000ml of W2606 + 0.00250ml of VP121536 + 0.00250ml of VP121786					P120190 + 0.00	250ml of	

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VOC STANDARD PREPARATION LOG

<u>Recipe</u> <u>ID</u> 833	NAME 2.5 PPB LOD, 8260-SOIL	<u>NO.</u> VP121794	Prep Date 07/17/2023	Expiration Date 07/18/2023	<u>Prepared</u> <u>By</u> Mahesh Dadoda	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By John Carlone 07/20/2023
FROM	4.98000ml of W2606 + 0.00130ml of VP121616 + 0.00250ml of VP120190					P121541 + 0.00	130ml of	

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	NAME	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	PipetteID	Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP121817</u>	07/18/2023	07/19/2023	John Carlone	None	None	
								07/20/2023
FROM	39.98400ml of W2606 + 0.01600ml o	of VP121045	5 = Final Qua	ntity: 40.000 m	nl			

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Recipe ID 620	NAME 50 PPB CCC, 8260-Water	<u>NO.</u> VP121818	Prep Date 07/18/2023	Expiration Date 07/19/2023	Prepared By John Carlone	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By Mahesh Dadoda 07/20/2023
FROM	39.94450ml of W2606 + 0.00500ml o VP121535 + 0.01250ml of VP121691						01250ml of	

<u>Recipe</u> <u>ID</u> 620	NAME 50 PPB CCC, 8260-Water	<u>NO.</u> VP121819	Prep Date 07/18/2023	Expiration Date 07/19/2023	Prepared By John Carlone	<u>ScaleID</u> None	PipettelD None	Supervised By Mahesh Dadoda 07/20/2023
FROM	39.94450ml of W2606 + 0.00500ml o VP121535 + 0.01250ml of VP121691						1250ml of	

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Recipe ID 732	NAME BFB TUNE CHECK - SOIL	<u>NO.</u> VP121821	Prep Date 07/18/2023	Expiration Date 07/19/2023	<u>Prepared</u> <u>By</u> Mahesh Dadoda	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By John Carlone 07/20/2023
FROM	4.99800ml of W2606 + 0.00200ml of	VP121045	= Final Quan	tity: 5.000 ml				

<u>Recipe</u> <u>ID</u> 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP121824	Prep Date 07/18/2023	Expiration Date 07/19/2023	<u>Prepared</u> <u>By</u> Mahesh Dadoda	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By John Carlone 07/20/2023
<u>FROM</u>	4.98000ml of W2606 + 0.00250ml of VP121536 + 0.00250ml of VP121786					P120190 + 0.00	250ml of	

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Recipe ID 773	NAME 50 PPB CCC, 8260-SOIL	<u>NO.</u> VP121825	Prep Date 07/18/2023	Expiration Date 07/19/2023	Prepared By Mahesh Dadoda	<u>ScaleID</u> None	<u>PipetteID</u> None	Supervised By John Carlone 07/20/2023
FROM	4.98000ml of W2606 + 0.00250ml of VP121536 + 0.00250ml of VP121786					2120190 + 0.00	250ml of	

<u>Recipe</u> <u>ID</u> 3763	NAME 4.0 PPB 8260 SOIL MDL	<u>NO.</u> VP121827	<u>Prep Date</u> 07/18/2023	Expiration Date 07/19/2023	Prepared By Mahesh Dadoda	<u>ScaleID</u> None	PipettelD None	Supervised By John Carlone 07/20/2023
FROM	4.98000ml of W2606 + 0.00200ml of VP121788 + 0.00250ml of VP12019(P121538 + 0.00	200ml of	



CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30067 / BFB tuneing solution	A0147670	12/12/2023	12/12/2022 / SAM	01/09/2020 / sam	V10601
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]	A0173020	09/15/2023	03/15/2023 / SAM	06/04/2021 / SAM	V12006
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]	A0173020	12/26/2023	06/26/2023 / SAM	06/04/2021 / SAM	V12012
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	A0173600	11/04/2023	05/04/2023 / SAM	06/22/2021 / SAM	V12081
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	A0173600	12/26/2023	06/26/2023 / SAM	06/22/2021 / SAM	V12082
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std,	A0168291	09/27/2023	03/27/2023 / SAM	10/15/2021 / SAM	V12226



CHEMICAL RECEIPT LOG BOOK

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	A0173797	08/28/2023	02/28/2023 / SAM	10/15/2021 / SAM	V12229
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	A0180020	11/18/2023	05/18/2023 / SAM	03/07/2022 / SAM	V12695
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	A0176219	09/15/2023	03/15/2023 / SAM	03/25/2022 / SAM	V12761
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	A0176219	11/16/2023	05/16/2023 / SAM	03/25/2022 / SAM	V12764
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	A0176219	09/15/2023	03/15/2023 / SAM	03/25/2022 / SAM	V12765
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,	A0176219	11/16/2023	05/16/2023 / SAM	03/25/2022 / SAM	V12767



<pre>/ VOA Mix, chloromethane, g/mL, P&TM, mpul emCode / ItemName / 2-Chloroethyl Vinyl (Min = 5) emCode / ItemName / 2-Chloroethyl Vinyl (Min = 5)</pre>	A0176219 Lot # 121321 Lot # 121321	11/16/2023 Expiration Date 07/24/2023 Expiration Date 12/13/2024	05/16/2023 / SAM Date Opened / Opened By 01/24/2023 / SAM Date Opened / Opened By 01/24/2023 / SAM	03/25/2022 / SAM Received Date / Received By 03/30/2022 / SAM Received Date / Received By 03/30/2022 / SAM	V12768 Chemtech Lot # V12783 Chemtech Lot # V12784
<pre>/ 2-Chloroethyl Vinyl (Min = 5) emCode / ItemName / 2-Chloroethyl Vinyl</pre>	121321	Date 07/24/2023 Expiration Date	Opened By 01/24/2023 / SAM Date Opened / Opened By 01/24/2023 /	Received By 03/30/2022 / SAM Received Date / Received By 03/30/2022 /	Lot # V12783 Chemtech Lot #
(Min = 5) emCode / ItemName / 2-Chloroethyl Vinyl	Lot #	Expiration Date	SAM Date Opened / Opened By 01/24/2023 /	SAM Received Date / Received By 03/30/2022 /	Chemtech Lot #
/ 2-Chloroethyl Vinyl		Date	Opened By 01/24/2023 /	Received By 03/30/2022 /	Lot #
	121321	12/13/2024			V12784
emCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
/ 2-Chloroethyl Vinyl (Min = 5)	121321	07/24/2023	01/24/2023 / SAM	03/30/2022 / SAM	V12785
emCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
/ 2-Chloroethyl Vinyl (Min = 5)	121321	07/24/2023	01/24/2023 / SAM	03/30/2022 / SAM	V12786
emCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
/ 2-Chloroethyl Vinyl	121321	01/13/2024	07/13/2023 / SAM	03/30/2022 / SAM	V12787
	(Min = 5) emCode / ItemName	(Min = 5) emCode / ItemName Lot # / 2-Chloroethyl Vinyl 121321	/ 2-Chloroethyl Vinyl (Min = 5) 121321 07/24/2023 emCode / ItemName Lot # Expiration Date / 2-Chloroethyl Vinyl 121321 01/13/2024	/ 2-Chloroethyl Vinyl (Min = 5) 121321 07/24/2023 01/24/2023 / SAM emCode / ItemName Lot # Expiration Date Date Opened / Opened By / 2-Chloroethyl Vinyl 121321 01/13/2024 07/13/2023 /	/ 2-Chloroethyl Vinyl (Min = 5) 121321 07/24/2023 01/24/2023 / SAM 03/30/2022 / SAM emCode / ItemName Lot # Expiration Date Date Opened / Opened By Received Date / Received By / 2-Chloroethyl Vinyl 121321 01/13/2024 07/13/2023 / 03/30/2022 /



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	01/13/2024	07/13/2023 / SAM	03/30/2022 / SAM	V12788
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	01/13/2024	07/13/2023 / SAM	03/30/2022 / SAM	V12789
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	01/10/2024	07/10/2023 / SAM	07/06/2022 / SAM	V12963
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	A0187424	12/26/2023	06/26/2023 / SAM	08/12/2022 / SAM	V13088
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	A0187424	12/26/2023	06/26/2023 / SAM	08/12/2022 / SAM	V13089
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	A0187418	11/18/2023	05/18/2023 / SAM	08/12/2022 / SAM	V13104



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	A0186868	12/26/2023	06/26/2023 / SAM	09/01/2022 / SAM	V13196
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	A0186868	12/26/2023	06/26/2023 / SAM	09/01/2022 / SAM	V13199
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)	22C2362001	07/24/2023	01/24/2023 / SAM	09/13/2022 / SAM	V13217
			Expiration	Date Opened /	Received Date /	Chemtech
Supplier	ItemCode / ItemName	Lot #	Date	Opened By	Received By	Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22C2362001	09/10/2023	03/10/2023 / SAM	09/13/2022 / SAM	V13222
Cumpling			Expiration	Date Opened /	Received Date /	Chemtech

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	112921	11/29/2024	05/18/2023 / SAM	11/16/2022 / SAM	V13302

n Date Opened / Received Date / Chemte Opened By Received By Lot :	Expiration Date	Lot #	ItemCode / ItemName	Supplier
B 05/18/2023 / 11/18/2022 / V1333 SAM SAM V1333	11/18/2023	31921	95319 / Revised Additions Mix (Min = 5)	Absolute Standards, Inc.
			95319 / Revised Additions	Absolute



CHEMICAL RECEIPT LOG BOOK

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	12/26/2023	06/26/2023 / SAM	11/18/2022 / SAM	V13343
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	12/26/2023	06/26/2023 / SAM	11/18/2022 / SAM	V13344
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	A0188819	12/26/2023	06/26/2023 / SAM	01/27/2023 / SAM	V13494
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	A0188819	12/26/2023	06/26/2023 / SAM	01/27/2023 / SAM	V13495
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	A0190554	12/26/2023	06/26/2023 / SAM	01/27/2023 / SAM	V13520
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	A0190554	12/26/2023	06/26/2023 / SAM	01/27/2023 / SAM	V13521



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	A0190554	12/26/2023	06/26/2023 / SAM	01/27/2023 / SAM	V13523
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	09/30/2025	06/23/2023 / SAM	01/27/2023 / SAM	V13546
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)	042921	12/26/2023	06/26/2023 / SAM	01/30/2023 / SAM	V13558
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)	042921	12/26/2023	06/26/2023 / SAM	01/30/2023 / SAM	V13559
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	01/05/2024	07/05/2023 / SAM	01/30/2023 / SAM	V13577
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	01/05/2024	07/05/2023 / SAM	01/30/2023 / SAM	V13578



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)	22C2862010	12/26/2023	06/26/2023 / SAM	02/23/2023 / SAM	V13641
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)	22C2862010	01/05/2024	07/05/2023 / SAM	02/23/2023 / SAM	V13644
					I	
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)	22C2862010	12/08/2023	06/08/2023 / SAM	02/23/2023 / SAM	V13655

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)	22C2862010	10/27/2023	04/27/2023 / SAM	02/23/2023 / SAM	V13657

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)	22C2862010	11/16/2023	05/16/2023 / SAM	02/23/2023 / SAM	V13658

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	A0193195	11/18/2023	05/18/2023 / SAM	03/13/2023 / SAM	V13661



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	062823	07/28/2023	07/05/2023 / SAM	06/29/2023 / SAM	V13870
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	062823	07/28/2023	07/05/2023 / SAM	06/29/2023 / SAM	V13871
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	062823	07/28/2023	07/05/2023 / SAM	06/29/2023 / SAM	V13872
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	062723	07/27/2023	07/05/2023 / SAM	06/29/2023 / SAM	V13875
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	062723	07/27/2023	07/05/2023 / SAM	06/29/2023 / SAM	V13876
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	10/24/2024	10/24/2019 / apatel	10/24/2019 / apatel	W2606

Avantor



Material No.: 9077-02 Batch No.: 22C2862010 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 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	0.3
Titrable Base (µeq/g)	≤ 0.10	< 0.02
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

James Techies

Avantor



Material No.: 9077-02 Batch No.: 22C2862010 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 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	0.3
Titrable Base (µeq/g)	≤ 0.10	< 0.02
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

James Techies

Avantor



Material No.: 9077-02 Batch No.: 22C2862010 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 Revision No.: 0

Certificate of Analysis

Test	Specification	Result
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Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.3
Titrable Base (µeq/g)	≤ 0.10	< 0.02
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

James Techies

Avantor



Material No.: 9077-02 Batch No.: 22C2862010 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 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	0.3
Titrable Base (µeq/g)	≤ 0.10	< 0.02
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

James Techies

Avantor



Material No.: 9077-02 Batch No.: 22C2862010 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 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	0.3
Titrable Base (µeq/g)	≤ 0.10	< 0.02
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

James Techies

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



Certified Reference Material CRM



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

www.absolutestandards.com CERTIFIED WEIGHT REPORT Part Number: 95317 Solvent(s): Solvent(s): Lot# Methanol DY186-USQ8 Lot Number: 042921 Description: Universal VOA Megamix 69 components Expiration Date: 042924 Recommended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 6UTB 5E-05 Balance Uncertainty

100.0 0.012 Flask Uncertainty

EI	" Aliego	04292
Formulated By:	Ell Aliaga	DAT
	do tento	04292
Reviewed By:	Pedro L. Rentas	DAT

		(RM#)	Lat	Da.	Initial	linitiet	Nominal	Purity	Putity	Uncertainty	Tarpet	Actual	Actual	Expanded Uncertainty	(Eab	SDS information	abad na b
	Compound	Part Nureb		Facto			Conc (µg/mL)		Uncertainty	Pipette (mL)	Weight(g)	Weight(g)) (+/-) (µg/mL)	CAS#	osha pel. (TWA)	LD50
	Acetonitrile	(0324)	060812	NA	NA	NA	2000	99.9	0.2	NA	0.20021	0.20041	2002.0	8.1	75-05-8	40 ppm (70mg/m3/8H)	orf-rat 2460mg/kg
	Allyl chloride (3-Chloropropene)	(0325)	102396	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20233	2003.0	8.2	107-05-1	7 ppm (3mg/m3/BH)	ori-rat 700mg/kg
	Carbon disulphide	(0060)	MKCD9604	NA	NA	NA	2000	100	0.2	NA	0.20001	0.20015	2001.4	8.1	75-15-0	4 ppm (12mg/m3) (skin)	ori-rat 1200mg/kg
	cis-1,4-Dichloro-2-butene trans-1,4-Dichloro-2-butene	(1196)	14718EF	NA	NA	NA	2000	85	0.2	NA	0.21054	0.21060	2000.6	8.5	1476-11-5	N/A	N/A
6.	Diethyl ather (Elhyl ether)	(0488) (0153)	MKBP8041V	NA	NA	NA	2000	96.5	0.2	NA	0.20726	0.20751	2002.4	8.4	110-57-6	N/A	N/A
	Elhyl methacrylate	(0153)	SHBK1918 06126PX	NA	NA NA	NA	2000	99.9 99	0.2	NA	0.20023	0.20048	2002.3	8.1	60-29-7	400ppm (1200mg/m3/8H)	orl-rat 1215mg/hg
	lodomelhane	(0489)	SHBF8718V	NA	NA	NA	2000	99.5	0.2	NA NA	0.20203	0.20230	2002.7	8.2	97-63-2	N/A	orl-rat 14800mg/kg
9.	2-Methyl-1-propanol	(0445)	15241EB	NA	NA	NA	2000	99.5	0.2	NA	0.20101	0.20130	2002.8	8.1	74-88-4	5 ppm(28mg/m3/6H)(skin)	
10.	Methacrylonitrile	(0442)	00427ET	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20220	2002.1 2001.7	8.1	78-83-1 126-98-7	60 ppm (150mg/m3/8H)	orl-ret 2460mg/kg
	Methyl acrylate	(1075)	SHBK0679	NA	NA	NA	2000	99.9	0.2	NA	0.20021	0.20046	2002.5	8.1	98-33-3	1 ppm (3mg/m3/8H)(skin) 10 ppm(35mg/m3/8H)(skin)	ori-rat 120mg/kg ori-rat 277mg/kg
12.	Methyl methacrylate		MKBW5137V	NA	NA	NA	2000	99.9	0.2	NA	0.20021	0.20048	2002.7	6.1	80-62-6	100 ppm (410mg/m3/8H)	orl-rat 7872mg/kg
	Nitrobenzene	(0228)	01213TV	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20216	2001.5	8.2	98-95-3	1 ppm (5mg/m3/8H)(skin)	orl-rat 780mg/kg
	2-Nitropropane	(0481)	14002JX	NA	NA	NA	2000	97.3	0.2	NA	0.20556	0.20565	2001.0	8.3	79-46-9	10 ppm (35mg/m3/8H)	orl-rat 720mg/kg
	Pentachloroethane	(0450)	HGA01	NA	NA	NA	2000	98	0.2	NA	0.20409	0.20418	2000.9	8.2	76-01-7	NVA	NYA
16.	1,1,2-Trichlorotrilluoroethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20221	2001.8	8.2	76-13-1	1000 ppm (7600mg/m3/6H)	ori-mt 43g/kg
	Bromodichloromethane	35171	100220	0.05	5.00	40018.8	2000	NA	NA	0.017	NA	NA	2000.8	18.4	75-27-4	N/A	orl-rat 916mg/kg
	Dibromochloromethane	35171	100220	0.05	5.00	40007.7	2000	NA	NA	0.017	NA	NA	2000.3	18.4	124-48-1	N/A	orl-rat 848mgAg
	cis-1,2-Dichloroethene	35171	100220	0.05	5.00	40012.4	2000	NA	NA	0.017	NA	NA	2000.5	18.4	158-59-2	N/A	N/A
	trans-1,2-Dichloroethene	35171	100220	0.05	5.00	40005.6	2000	NA	NA	0.017	NA	NA	2000.2	18.4	156-60-5	N/A	orl-rail 1235mg/kg
	Methylene chloride 1,1-Dichloroethene	35171 32251	100220	0.05	5.00	40013.9	2000	NA	NA	0.017	NA	NA	2000.6	18.4	75-09-2	500 ppm	orl-net 820mg/kg
	Bromoform	95321	031821 010419	0.10	10.00	20009.1 20001.7	2000	NA	NA	0.042	NA	NA	2000.8	19.3	75-35-4	t ppm (4mg/m3/BH)	orl-rat 200mg/kg
	Carbon letrachloride	95321	010419	0.10	10.00				NA	0.042	NA	NA	2000.1	19.3	75-25-2	Q.5 ppm (5mg/m3) (aldn)	orl-rat \$33mgAg
	Chioroform	95321	010419	0.10	10.00	20001.3 20001.8	2000	NA NA	NA	0.042	NA	NA	2000.0	19.2	56-23-5	2 ppm (12.6mg/m3/8H)	orl-rat 2350mg/kg
	Dibromomethane	95321	010419	0.10	10.00	20001.0	2000	NA			NA	NA	2000.1	19.2	67-66-3	60 ppm (240mg/m3) (CL)	p/\qm80e tm-ho
	1,1-Dichioroethane	95321	010419	0.10	10.00	20001.7 20000.8	2000	NA	NA	0.042	NA	NA	2000.1	19.3	74-95-3	N/A	orl-rat t08mgAg
	2,2-Dichloropropane	95321	010419	0.10	10.00	20002.1	2000	NA	NA	0.042	NA	NA	2000.0 2000.1	19.3	75-34-3 594-20-7	100 ppm	orl-rat 725mg/kg
	Tetrachloroethene	95321	010419	0.10	10.00	20002.2	2000	NA	NA	0.042	NA	NA	2000.1	19.3		N/A	N/A
	1,1,1-Trichloroethane	95321	010419	0.10	10.00	20001.7	2000	NA	NA	0.042	NA	NA	2000.1	19.3	127-18-4 71-55-6	25 ppm (170mg/m3/8H)(final)	the second se
31.	1,2-Dibromo-3-chioropropane	35161	011421	0.05	5.00	40001.2	2000	NA	NA	0.017	NA	NA	2000.0	18.4	96-12-8	350 ppm (1900mg/m3/8H)	orl-rat 10300mg/kg
32.	1,2-Dibromoethane	35161	011421	0.05	5.00	40003.9	2000	NA	NA	0.017	NA	NA	2000.0	18.4	108-93-4	0.001 ppm 20 ppm (8H)	orl-rat 170mg/kg
33.	1,2-Dichloroethane	35161	011421	0.05	5.00	40004.9	2000	NA	NA	0.017	NA	NA	2000.1	18.4	107-08-2	SO ppm (8H)	orl-rat 108mg/kg orl-rat 670mg/kg
	1,2-Dichloropropane	35161	011421	0.05	5.00	40002.2	2000	NA	NA	0.017	NA	NA	2000.0	18.4	78-87-5	75 ppm (350mg/m3/8H)	orl-rat 1947mg/kg
35.	1,3-Dichloropropane	35161	011421	0.05	5.00	40013.9	2000	NA	NA	0.017	NA	NA	2000.6	18.4	142-28-9	N/A	Unr-mus 3600mg/kg
36.	1,1-Dichloropropene	35161	011421	0.05	5.00	40015.0	2000	NA	NA	0.017	NA	NA	2000.7	26.1	563-58-6	N/A	N/A
37.	is-1,3-Dichloropropene	35161	011421	0.05	5.00	40004.4	2000	NA	NA	0.017	NA	NA	2000.1		0061-01-5	N/A	N/A
	rans-1,3-Dichloropropene	35161	011421	0.05	5.00	40009.1	2000	NA	NA	0.017	NA	NA	2000.4	18.5 1	0061-02-6	N/A	N/A
	lexachloro-1,3-butadiene	35161	011421	0.05	5.00	40003.5	2000	NA	NA	0.017	NA	NA	2000.1	26.4	87-68-3	0.02 ppm (0.24mg/m3/8H)	ori-rat 82mg/kg
	1,1,2-Tetrachloroethane	35161	011421	0.05	5.00	40011.9	2000	NA	NA	0.017	· NA	NA	2000.5	18.4	630-20-6	NA	orl-rat 670mg/kg
	1.2.2-Tetrachloroethane	35181	011421	0.05	5.00	40011.0	2000	NA	NA	0.017	NA	NA	2000.5	18.4	79-34-5	5 ppm (35mg/m3/9H)(akin)	orl-rat 800mg/kg
40	1.2-Trichloroethane	35161	011421	0.05	5.00	40000.8	2000	NA	NA	0.017	NA	NA	1999.9	18.4	79-00-5	10 ppm (45mg/m3/8H)(sidn)	orl-rat 836mp/kg
44	richlorosthene ,2,3-Trichloropropane	35161	011421	0.05	5.00	40003.2	2000	NA	NA	0.017	NA	NA	2000.1	16.4	79-01-6	60 ppm (270mg/m3/8H)	orl-mus 2402mg/kg
	lanzana	35161 35162	011421 020821	0.05	5.00	40015.2	2000	NA	NA	0.017	NA ·	NA	2000.7	18.4	96-18-4	10 ppm (60mg/m3/8H)	ori-rat 149.6mg/kg
	komobenzene	35162	020821	0.05	5.00	40008.9	2000	NA	NA NA	0.017	NA	NA	2000.3	18.4	71-43-2	1 ppm	ori-rat 4894mg/kg
	-Butyl benzene	35162		0.05	5.00	40019.0	2000	NA	NA NA	0.017	NA	NA	2000.9		108-86-1	N/A	orl-rat 2599mg/kg
	thy benzene	35162		0.05	5.00	40000.9	2000	NA	NA	0.017	NA	NA NA	2000.9		104-51-8	N/A	N/A
	-isopropyl toluene	35162		0.05	5.00	40056.4	2000	NA	NA	0.017	NA	NA	1999.9 2002.7	18.4	100-41-4	100 ppm (435mg/m3/8H)	orl-rat>2000mg/kg
	laphthalene	35162		0.05	5.00	40005.1	2000	NA	NA	0.017	NA	NA	2002.7	18.3	99-87-6 91-20-3	N/A	ori-rat 4750mg/kg
	tyrene	35162		0.05	5.00	40022.8	2000	NA	NA	0.017	NA	NA	2001.0		91-20-3	10 ppm (50mg/m3/6H)	ori-rat 490mg/kg
	bluene	35162		0.05	5.00	40008.9	2000	NA	NA	0.017	NA	NA	2000.3		108-88-3	100 ppm 200 ppm	orf-rat 5000mg/kg orf-rat 5000mg/kg
53. 1	2,3-Trichlorobenzene	35162		0.05	5.00	40002.0	2000	NA	NA	0.017	NA	NA	2000.0		87-61-6	200 ppm N/A	ipr-mus 1390mg/kg
	2,4-Trichiorobenzane	35162		0.05	5.00	40027.4	2000	NA	NA	0.017	NA	NA	2001.3		120-82-1	5 ppm (CL) (40mg/m3)	orl-rat 756mg/kg
	2.4-Trimelhylbenzene	35162		0.05	5.00	40012.4	2000	NA	NA	0.017	NA	NA	2000.5		95-63-6	N/A	orl-ret 5g/kg
	3,5-Trimethylbenzene	35162		0.05	5.00	40011.5	2000	NA	NA	0.017	NA	NA	2000.5		108-67-8	N/A	ori-rat 5000mg/kg
	-Xylene	35182		0.05	5.00		2000	NA	NA	0.017	NA	NA	2001.0		108-38-3	100 ppm (435mg/m3/8H)	orl-rat 5g/kg
	nt-Butyl benzene	35163		0.05	5.00		2000	NA	NA	0.017	NA	NA	2000.2		98-06-6	N/A	N/A
	ic-Butyl benzene	35163		0.05	5.00		2000	NA	NA	0.017	NA	NA	2000.5	18.4 1	35-98-8	NA	ori-rat 2240mg/kg
60. C	hlorobenzene	35163		0.05	5.00		2000	NA	NA	0.017	NA	NA	2000.4		08-90-7	75 ppm (350mg/m3/8H)	orl-rat 2290mg/kg
00 0	Obtantalisas	35163	022521	0.05	5.00			NA	NA	0.017	NA	NA	2000.0		95-49-8	60 ppm (250mg/m3/0H)	orl-rat 3900mg/kg
	Chlorotoluene					40000,4	2000	NA	NA	0.017	NA	NA	1999.9		06-43-4	NA	orl-rat 2100mg/kg
62. 4	Chiorotoluene	35183		0.05	5.00					0.049		614	0000 4				
62. 4 63. 1	Chiorotoluene 2-Dichlorobanzane	35183 35163	022521	0.05	5.00	40004.0		NA	NA	0.017	NA	NA	2000.1		95-50-1	50 ppm (300mg/m3) (CL)	orl-rat 500mg/kg
62. 4 63. <u>1</u> 64, <u>1</u>	Chicrotoluene 2-Dichlorobenzene 3-Dichlorobenzene	35163 35163 35163	022521 0 022521 0	0.05 0.05	5.00 5.00	40004.0 40003.6	2000	NA :	NA	0.017	NA	NA ···	2000.1	18.4 5	41-73-1	N/A	ipr-mus 1062mg/kg
62. 4 63. 1 64. 1 65. 1	Chisrotoluene 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene	35183 35163 35163 35163	022521 (022521 (022521 (0.05 0.05 0.05	5.00 5.00 5.00	40004.0 40003.6 40005.0	2000	NA :	NA NA	0.017 0.017	NA NA	NA NA	2000.1 2000.2	18.4 5 -16.4 1	641-73-1 08-48-7	N/A 75 ppm (450mg/m3/8H)	ipr-mus 1062mg/kg ori-ret 500mg/kg
62. 4 63. 1 64, 1 65. 1 65. 1	Chlorololuerne 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene apropy/benzene	35183 35163 35163 35183 35183	022521 (022521 (022521 (022521 (0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40004.0 40003.6 40005.0 40007.4	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	2000.1 2000.2 2000.3	18.4 5 18.4 1 18.4 1	641-73-1 06-48-7 98-82-8	N/A 75 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H)	pr-mus 1052mg/kg orl-rat 500mg/kg orl-rat 1400mg/kg
62. 4 63. 1 64, 1 65. 1 66. 1 66. 1 67. n	Chiorololuene 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene gropg/banzene Propylbenzene	35183 35163 35163 35163 35163 35163	022521 (022521 (022521 (022521 (022521 (022521 (0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40004.0 40003.6 40005.0 40007.4 40004.6	2000 2000 2000 2000 2000	NA NA NA	NA NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA NA NA	2000.1 2000.2 2000.3 2000.1	18.4 5 18.4 1 18.4 1 18.4 1	641-73-1 08-48-7 98-82-8 03-85-1	N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H) N/A	pr-mus 1062mg/kg orf-rat 500mg/kg orf-rat 1400mg/kg orf-rat 6040mg/kg
62. 4 63. 1 64. 1 65. 1 68. 1	Chlorololuene 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene propylbenzene Propylbenzene Xylene	35163 35163 35163 35163 35163 35163 35163 35163	022521 (022521 (022521 (022521 (022521 (022521 (022521 (0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00	40004.0 40003.6 40005.0 40007.4 40004.8 40003.0	2000 2000 2000 2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	2000.1 2000.2 2000.3	18.4 5 18.4 1 18.4 1 18.4 1 18.4 1 18.4 1 18.4 1 18.4 1 18.4 1	641-73-1 06-48-7 98-82-8	N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H) N/A	pr-mus 1052mg/kg orl-rat 500mg/kg orl-rat 1400mg/kg

The cartified value is the concentration orientated from gravimetric and volumetric measurements unless otherwise stated,
 Standards are propared gravimetrically using bulances that are calibrated with weights trancable to NIST (see abave),
 Standards, etc. are orified (e) 1.05% of the stated volues, melses otherwise stated,
 all Standards, etter organing angues, should be stored with regulations for Evolution and and the store origin of the state of the

Certified Reference Material CRM

Run 22, "P95317 L042921 [2000µg/mL in MeOH]"	Pull	Analyta	FED RT
Run Length: 60.00 min, 35999 points at 10 points/second. Created: Thu, Apr 29, 2021 at 3:49:30 PM. Sampled: Sequence "042521-GC5M1", Method "GC5-M1". Analyzed using Method "GC5-M1".	23456785	Bher 1.1Brickovo-1.2.2-triflooroethaae 1.1Brickovostbane Actorbaritie Isodewetehane Advi droords Cardene direatilde/ Hestuyteen Chiertele tatal-a.2.2.Colloneethere 1.1Orderborethere 1.1Orderborethere	8.48 8.90 5.51 10.44 10.71 13.92 11.51 12.55 14.28
Comments GC5-M1 Analysis by Candice Warren Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min., Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min. Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.), Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C. FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=4	11 12 13 14 10 15 17 18 29 20 21 22 23 24 25	3,4-01269000058 ext.1-2-00000000000000000000000000000000000	16.33 16.35 17.14 18.52 19.08 19.36 20.11 22.73 22.92 23.26 23.75 23.99 24.18 25.71 25.71 27.50
400000-	25 27 28 30 31 32 33 33 34 33	1.1.2.1-0120120051aret Testerskohrenedforen (J. P.Dikharesregense Discenschisorondrähne 1.2-08konschare Ethyllessame (J. J. 1, 1, 2-Tetrachbrestkame ex-Zylana (JZylana o-Vylana Stythio Stythio Kanarenthatistess (Frampform	28.04 28.92 29.79 30.45 31.89 32.07 32.33 33.87 34.04 37.14
300000-	36 37 38 39 40 41 42	Logi provinski p	35.49 35.30 36.34 36.58 36.73 37.17 37.38
रू 200000- मिन्द्र स्थिति	43 42 45 46 47 46 47 46 49 90	ter-Bor/fersten 1.24-Frankrighensens/Pentachierverbane sc-Bor/fersten p-Isopoylexane 1.4-Dickforubarzere 1.4-Dickforubarzere m-Bur/festensiere	38.41 38.55 39.16 39.68 40.01 40.42 41.42 41.15 41.15 41.75
	51 52 53 54 55	1,2-010remb-2-018krg/mgable Northonaetane 1,2,4-Throstombarsane HeraustonbarsGene Nagistrauliste 1,2,5-Throstomobestelm	44,68 45,04 47,00 48,29 43,76 43,76 43,76
0 10 20 30 40 50 Min			

Methanol-SDS.xls

PO Box 5585 Hamden, CT 06518-0585

Printed: 1/25/23

	Safety Data Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Product and Co	ompany Identification			
IDENTITY ANALYTI	CAL STANDARD DISSOLVED IN M	ETHANOL		
Manufacturer's Name Address	ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514	Emergency Tele	ephone USA & CANADA ephone International Revised	1-800-535-5053 1-352-323-3500
Section II - Hazards Iden		Date Trepared/	neviseu	January 1, 2022
	GHS Classification in accore	dance with 29 CF	R 1910 (OSHA HCS)	
H225 Highly Fla	ammable Liquid and Vapor		Toxic if swallowed, skin con	lact, inhaled
	mage to organs ntilated area	H351 P280	Suspected of causing cance	r
	, wash with soap and water	P305,351,338	Use gloves, eye protection/fa If in eyes, remove contacts, i	rinse with water
۵ 🔅 🌾	Signal Word: DANGER			
Section III - Composition				
Components (Specific Che Methanol	mical Identity; Common Name(s)) METHYL ALCOHOL	CAS#: 67-56-1		% (optional) > 97
See Certified Weight F	Report For Other Analytes Pre	esent At Trace	Quantities.	
INTENDED USE: REFERE	ENCE MATERIAL			
Section IV. FIRST AID ME	ASURES			
General advice If inhaled In case of skin contact In case of eye contact If swallowed	Consult a physician. Show this safety data If inhaled, move person into fresh air. If no Wash with soap and water. Consult a phy Rinse thoroughly with plenty of water for a Do NOT induce vomiting. Rinse mouth wit	it breathing, give artifi sician. t least 15 minutes an	icial respiration. Consult a physician. d consult a physician.	
		n water. Oonsolt a pri	ysician.	
Section V. FIREFIGHTING			ysician.	
Section V. FIREFIGHTING Flammability Suitable extinguishing media Protective equipment for fire	MEASURES	ce of ignition when the No smoking. Im, dry chemical or ca	e temperature is above the flash point.	Keep away from
Flammability Suitable extinguishing media Protective equipment for fire	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara	ce of ignition when the No smoking. Im, dry chemical or ca	e temperature is above the flash point.	Keep away from
Flammability Buitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing	ce of ignition when the No smoking. Im, dry chemical or ca Itus for fire fighting if i	e temperature is above the flash point. arbon dioxide. necessary.	
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo	ce of ignition when the No smoking. Im, dry chemical or ca Itus for fire fighting if i Itus for fire fighting if i Itus for fire fighting if i	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove	
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing	ce of ignition when the No smoking. Im, dry chemical or ce tus for fire fighting if i ug vapors, mist or gas sive concentrations. o do so. Do not let pri	e temperature is above the flash point. arbon dioxide. necessary. Ensure adequate ventilation. Removioduct enter drains.	e all sources of
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions invironmental precautions Flean up	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and place	ce of ignition when the No smoking. Im, dry chemical or ce tus for fire fighting if i ug vapors, mist or gas sive concentrations. o do so. Do not let pri	e temperature is above the flash point. arbon dioxide. necessary. Ensure adequate ventilation. Removioduct enter drains.	e all sources of
Flammability Suitable extinguishing media	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling	MEASURES Flammable in the presence of a source 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 place ID STORAGE	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp id inhalation of vapou es of ignition. No sm	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp id inhalation of vapou es of ignition. No sm and well-ventilated pla	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions Exercion VIII. EXPOSURE C Lethanol 67-56-1 TWA 2	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION 200 ppm	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp id inhalation of vapou es of ignition. No sm and well-ventilated pla	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Invironmental precautions Invironmental precautions Idean up Section VII. HANDLING AN recautions for safe handling torage Conditions Ection VIII. EXPOSURE C Idethanol 67-56-1 TWA 200 ppm	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION 200 ppm	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp id inhalation of vapou es of ignition. No sm and well-ventilated pla	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions Election VIII. EXPOSURE C Elethanol 67-56-1 TWA 2 kin notation TWA 200 ppm otential for skin absorption , inge ersonal protective equipment	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant for Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION 200 ppm	ce of ignition when the No smoking. Im, dry chemical or ce itus for fire fighting if i ig vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp id inhalation of vapou es of ignition. No sm and well-ventilated pla ON	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Removio oduct enter drains. losal according to local regulations (se r or mist. oking. Prevent the build up of electrosi ace. Containers which are opened mus	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions Election VIII. EXPOSURE C Elethanol 67-56-1 TWA 2 kin notation TWA 200 ppm otential for skin absorption , inge ersonal protective equipment	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION 200 ppm stion and inhalation. Respiratory protection Handle with glovess clothing. Wash hands thoroughly after hand	ce of ignition when the No smoking. Im, dry chemical or ce itus for fire fighting if i ig vapors, mist or gas sive concentrations. o do so. Do not let pro e in container for disp id inhalation of vapou es of ignition. No sm and well-ventilated pla ON	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Removio oduct enter drains. losal according to local regulations (se r or mist. oking. Prevent the build up of electrosi ace. Containers which are opened mus	e all sources of e section 13).

Page 1 of 2

Absolute Standards	Inc.		PO Box 5585 Hamden, CT 06518-0585	Phone: 203-281-2917 FAX: 203-281-2922
Boiling Point		65°C	Specific Gravity (H2O = 1)	0.79
Vapor Pressure (mm Hg)		96	Melting Point	-98°C
Vapor Density (AIR = 1)		1.11	Evaporation rate (Butyl Acetate = 1)	4.6
Solubility in Water	COMPLETE			
Appearance and Odor	CLEAR, COLORLI	ESS LIQUID W	ITH CHARACTERISTIC PUNGENT ODC	DR.
Section X. STABILITY AN	ID REACTIVITY			
Chemical stability	Stable under reco	ommended storag	e conditions.	

 Possibility of hazardous reactions
 Vapours may form explosive mixture with air.

 Conditions to avoid
 Heat, flames, sparks, extreme temperature and sunlight.

 Materials to avoid
 Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

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

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



Certified Reference Material CRM



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

www.absolutestandards.com CERTIFIED WEIGHT REPORT Part Number: 95317 Solvent(s): Solvent(s): Lot# Methanol DY186-USQ8 Lot Number: 042921 Description: Universal VOA Megamix 69 components Expiration Date: 042924 Recommended Storage: Freezer (0 °C) Nominal Concentration (µg/mL): 2000 NIST Test ID#: 6UTB 5E-05 Balance Uncertainty

100.0 0.012 Flask Uncertainty

EI	" Aliego	04292
Formulated By:	Ell Aliaga	DAT
	do tento	04292
Reviewed By:	Pedro L. Rentas	DAT

Number Num Num<			(8M#)	Lat	Di.	Initial	Initial	Nominal	Purity	Putity	Uncertainty	Tarpet	Actual	Actual	Expanded Uncertainty	(Enh	SDS information	aliand un b
2. Appl. Appl. No. No. Desc. 2 NA Control Con		Compound																LD50
A A NA NA NA NA O O C NA C COUNT COUNT COUNT <				060812	NA	NA	NA	2000	99.9	0.2	NA	0.20021	0.20041	2002.0	8.1	75-05-8	40 com (70mo/m3/8H)	orl-rat 2460mg/kg
A. A. Dirac Dirac <thdirac< th=""> <thdirac< th=""> Dirac<!--</td--><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>ori-rat 700mg/kg</td></thdirac<></thdirac<>																		ori-rat 700mg/kg
6. Turnel A. Linkson 2 Busice Main M															8.1			orl-rat 1200mg/kg
b. Boundarder. (Biny ethe) OT101 Berlin market A NA NA NA Dots C No Dots Dot															8.5		N/A	N/A
T. Burgenstein Other Start A NA NA NA																		N/A
A. Socialization Device Control Control Device Control Device Device <thdevice< th=""> <thdevice< th=""></thdevice<></thdevice<>		strainers & strainers and strainers																orl-rat 1215mg/hg
B. Description DH448 Description Description <thdescription< th=""> <thdescription< th=""> Descriptio</thdescription<></thdescription<>																		orl-rat 14800mg/kg
Model DevLog DevLog DevLog Pion Pion DevLog Pion Pion DevLog Pion																		on-rat 76mg/kg
1. Magi acyulas (107) Berolary Na Na Na Na Na Na Na Solution Solutio	10	Methacrylonitrile																orl-ret 2460mg/kg
19. Mark Market Decky Market Mark																		ori-rat 120mg/kg ori-rat 277mg/kg
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M. S. Margangane (b41) Models Ku M. NM NM NM NM			(0228)	01213TV	NA	NA	NA	2000	99	0.2	NA							orl-rat 780mg/kg
International default (Dec) (Dec)<						NA	NA	2000	97.3	0.2	NA	0.20556	0.20565					orl-rat 720mg/kg
17. Deconsciente 55/7 Log Constraint Sol Alor 17 Alor Output Display 18. Deconsciente 35/71 10022 0.06 5.00 40077 NA NA VA V										0.2	NA	0.20409	0.20418	2000.9	8.2	76-01-7		N/A
In Descriptions Diff MA Dot PAI MA DOI MA MA DOI MA MA DOI MA MA DOI MA DOI DOI <thdoi< th=""> <thdoi< th=""> DOI</thdoi<></thdoi<>												0.20203	0.20221	2001.8	8.2	76-13-1	1000 ppm (7600mg/m3/6H)	ori-rat 43g/kg
a. b. Discrete State Hole Mathematical State Hole Mathematical Hole Hol												NA	NA	2000.8	18.4	75-27-4	N/A	orl-rat 916mg/kg
Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>																		orl-rat 848mg/kg
Interpresentation 05/17 1002/20 0.09 0.001/2 <th0.001 2<="" th=""></th0.001>																		N/A
12 11 10 100 100 2001 70 MA MA MA 2000 6 104 75:052 200 mail and the second secon																		ort-rail 1235mg/kg
B. Bornsbrin BSSI 1 1014 D 1000 2000 114. TA Could be accurate the second seco												1.001						ori-net 820mg/kg
A. Conto Networkinde 1982 101419 0.10 10.00 20001 14.00 10.00 <td></td> <td>ori-rat 200mg/kg</td>																		ori-rat 200mg/kg
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97. 1.1.Dicklosopheme 99281 010419 0.00 2000 NA NA 0.002 NA NA 0.001 NA NA 0.001 <td></td> <td>orl-ret 908mg/kg</td>																		orl-ret 908mg/kg
38. 2.8.2.Bickhorogogana 9652 016418 0.10 0.000 2000 NA NA 0042 NA NA 2002 10.2 2.5																		orl-rat 108mgAg
20. Teachtonothane 96521 010418 0.10 0.0002,2 2000 NA NA 0.042 NA NA 20011 19.3 17.17-164 25 pent (150mpace) 25 pent (150mpace) <td>28.</td> <td>2,2-Dichloropropane</td> <td>95321</td> <td>010419</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.0.1</td> <td></td> <td></td> <td></td> <td></td> <td>orl-rat 725mg/kg N/A</td>	28.	2,2-Dichloropropane	95321	010419									1.0.1					orl-rat 725mg/kg N/A
30. 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	29.		95321	010419	0.10												the second statement of the se	
31. 1.12_Dicknorphysic 35181 011421 0.05 0.00 NA NA 0.017 NA NA 20200 11.44 10.05 0.001 jpp most 31. 1.12_Dicknorphysic 35161 011421 0.05 5.00 400044 2000 NA NA 0.017 NA NA 20001 11.44 10.05 5.00 400044 energy 400044 11.40 11	30.	1,1,1-Trichloroethane	95321	010419														orl-rat 10300mg/kg
32 1.5.2be/mode/file 011421 0.05 5.00 40003.9 2000 NA NA 0.017 NA NA 2001.1 18.4 10.095.4 200gm (He) orts 31.52/be/moresplane 35161 011421 0.05 5.00 40002.2 2000 NA NA 0.017 NA NA 2000.0 18.4 176-02-5 200 gm (He) orts 35.15/be/moresplane 35161 011421 0.05 5.00 40013.2 2000 NA NA 0.017 NA NA 2000.0 18.4 1462-28-9 NA wrem 35.15/be/moresplane 35161 011421 0.05 5.00 40004.2 2000 NA NA 0.017 NA NA 2000.1 18.4 10061-01-5 NA NA 0.017 NA NA 2000.1 18.4 10061-01-5 NA NA 0.017 NA NA 2000.1 18.4 70.945 5.00 NA NA 0.017		1,2-Dibromo-3-chioropropane	35161	011421	0.05	5.00						NA						orl-rat 170mg/kg
33. 12.024enconditiane 68/161 011421 0.05 5.00 40002.8 2000 NA NA 0.017 NA NA 2000.1 16.4 107-062.2 0.00 parts offer NA NA DDI N NA </td <td></td> <td></td> <td></td> <td>011421</td> <td>0.05</td> <td>5.00</td> <td>40003.9</td> <td>2000</td> <td>NA</td> <td>NA</td> <td>0.017</td> <td>NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>orl-rat 108mg/kg</td>				011421	0.05	5.00	40003.9	2000	NA	NA	0.017	NA						orl-rat 108mg/kg
34. 1_2_bettersprogene 35161 011421 0.05 5.00 40002.2 2000 NA NA NA DUIT NA NA <thduit< th=""> NA</thduit<>								2000	NA	NA	0.017	NA	NA	2000.1	18.4		and a second sec	orl-rat 670mg/kg
30. 1.2-Dictingrogane 35/181 011421 0.05 5.00 40013.9 2000 NA NA 0.017 NA NA 20007 28.1 1424 0.05 5.00 40016.9 2000 NA NA 0.017 NA NA NA NA 20007 28.1 162.6 163.4 10061-10-5 NA 37. dc1_3DEXINDERGY 35161 011421 0.05 5.00 40001.1 2000 NA NA 0.017 NA NA 2000.1 1.10.2 101.0 25.00 0.011.0 2000 NA NA 0.017 NA NA 2000.1 1.10.4 1.0.4 25.00 0.011.0 2000 NA NA 0.017 NA NA 20017 NA NA 20017 NA NA 2000.5 1.10.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 1.00.4 <						5.00	40002.2	2000	NA	NA	0.017	NA	NA	2000.0	18.4			orl-rai 1947mg/kg
30. 1.1.2-bit determinant 38/161 011421 0.06 5.00 40015.0 NA NA 0.017 NA NA 20007 25.1 653-80-6 NA 38. Trino-1.3.0/Lichtrogroppene 35161 011421 0.06 5.00 400061.2 0.00 1.0.4 NA NA 0.017 NA NA 2000.1 1.6.4 100041.0-2.4 NA 38. Trino-1.3.0/Lichtrogroppene 35161 011421 0.05 5.00 400011.0 2000 NA NA 0.017 NA NA 2000.5 1.6.4 789-92-6 NA Order 1.6.1 78.1 65.00 40001.0 2000 NA NA 0.017 NA NA 2000.5 1.6.4 789-92-6 NA Order 1.6.1 78.1 65.00 4000.001.6 2000 NA NA 0.017 NA NA 2000.5 1.6.4 78.9-0.5 10.9991 (179971.016.4 10.9911.017971.016.4 10.9911.017971.016.4 10.9911.017971.016.4 10.9911.017971.	35.	1,3-Dichloropropane								NA	0.017	NA	NA	2000.6	18.4	142-28-9		Unr-mus 3600mg/kg
38. Turner 1, 20 Dichlorograppene 361 ft 011 4/21 0.06 5.00 40003.5 2000 NA NA 0.017 NA NA 2000.1 26.4 10.02 Diraction (0.22 gpm) (0.24 mph) (0.2	36.	1,1-Dichloropropene								1					26.1	563-58-6	N/A	N/A
39. Hesschloroch_1_8-buildeline 35161 011421 0.05 6.007 NA NA 0.017 NA NA 2000 12.8 Hesselhorochure 35161 011421 0.05 5.00 40011.9 2000 NA NA 0.017 NA NA 2000.5 18.4 B7-89-5 0.02 pm (dsm_mdsH)(dsm) origit 41. 1.1.2.2-Tristachicrosoftname 35161 011421 0.05 5.00 40001.9 2000 NA NA 0.017 NA NA 200.5 18.4 79-04-5 500 pm (dsm_mdsH)(dsm) origit origit dsm_mdsH)(dsm) origit	37.	Cis-1,3-Dichloropropene														10061-01-5	N/A	N/A
40. 1.1.1.2-Therkenkloroethane 35161 011421 0.05 5.00 40011 2000 NA NA 0.017 NA NA 2000.5 18.4 059-20-5 NA Other participant 11.1.2-27th/bitroethane 35161 011421 0.05 5.00 40010.2 2000 NA NA 0.017 NA NA 200.5 18.4 639-20-5 100 midle 100 m																10061-02-6	N/A	N/A
41. 1.1.2.2-Testachionedhane 36181 011421 0.0.6 5.00 40001.0 2000 NA NA 0.017 NA NA 2000.5 16.4 775-04-5 5 ppm (35mg/N48mf(det)) ortail 43. 1.1.2.5-Trickhorephrane 35161 011421 0.05 5.00 40000.8 2000 NA NA 0.017 NA NA 1.0.4 775-04-5 5 ppm (35mg/N48mf(det)) ortail 44. 1.1.2.5-Trickhorephrane 35161 011421 0.05 5.00 400012 2000 NA NA 0.017 NA NA 2000.7 18.4 77-45.2 19 pm (35mg/N48mf(det)) ortail 45. Bromohanzane 35162 202821 0.05 5.00 40019.0 2000 NA NA 0.017 NA NA 2000.9 18.4 100-891-4 100 ppm (35mg/N49hf) ort-at 46. Emptohanzane 35162 202821 0.05 5.00 40000.4 2000 NA NA									1.0.1								0.02 ppm (0.24mg/m3/8H)	ori-rat 82mg/kg
42. 1.1.2-Trickloroschane 35161 011421 0.05 5.00 40000.8 2000 NA NA 0.017 NA NA NA 0.017 NA NA 0.017 NA NA 0.0017 NA NA																	and the second se	orl-rat 670mg/kg
43. Tichdonophene 35161 011421 0.05 5.00 400032 2000 NA NA 0.017 NA NA 2000.7 16.4 72-01-8 00 ppm (dimpm diffield) of multiple difficience 44. 12_25 Trichloroporpane 35161 011421 0.05 5.00 40015.2 2000 NA NA 0.017 NA NA 2000.7 16.4 75-01-8 00 ppm (dimpm diffield) of multiple 45. Bernane 35162 020821 0.05 5.00 40019.0 2000 NA NA 0.017 NA NA 2000.9 18.4 104-51-8 NA NA 48. Emploravie future 35162 020821 0.05 5.00 400018.2 2000 NA NA 0.017 NA NA 200.1 1.4 100-414 100 ppm (distance 49. Emploravie future 35162 020821 0.05 5.00 40002.2 2000 NA NA 0.017 N																		orl-rat 800mg/kg
44. 1.2.2-Trichtoropagnee 38161 011421 0.05 5.00 400152 2000 NA NA 0.017 NA NA 2000.7 18.4 98-18-4 10 ppm (80mp/n30H) ort-rate 45. Benzene 35162 020821 0.05 5.00 40019.0 2000 NA NA 0.017 NA NA 2000.9 18.4 109-861 NA ort-rate 46. Bromobenzene 35162 020821 0.05 5.00 40019.0 2000 NA NA 0.017 NA NA 2000.9 18.4 109-861 NA ort-rate 48. Etryl fourne 35162 020821 0.05 5.00 400018.2 2000 NA NA 0.017 NA NA 109-27 18.4 109-47-6 NA NA 49. Etryl fourne 35162 020821 0.05 5.00 40002.8 2000 NA NA 0.017 NA NA 2000.7 18.4 109-42-5 100 ppm midminishin origina 1.2.17/infnininfninfning 10	43	Trichiomathena																prigmbes tar-ino
45. Benzene 38182 020821 0.05 5.00 40008.9 2000 NA NA 0.017 NA NA 2000.3 16.4 105-9 201-94 10 plm (derightaber) orthat 46. Bromobenzane 35182 020821 0.05 5.00 40018.0 2000 NA NA 0.017 NA NA 2000.9 18.4 106-86-1 NA 47. n=Burly benzane 35182 02021 0.05 5.00 40018.8 2000 NA NA 0.017 NA NA 2000.9 18.4 100-41-4 100 plm (definghtaber) ort-at: 48. Ethyl benzane 35182 020821 0.05 5.00 40006.1 2000 NA NA 0.017 NA NA 2002.2 18.4 99-7-8 NA ort-at: 49. phiphtabene 35162 020821 0.05 5.00 40002.1 2000 NA NA 0.017 NA NA 2001.0 18.4 100-42.5 100 ppm (definghtabel) ort-at: 30.12.4 2000 NA NA 0.017 NA <t< td=""><td>44.</td><td>1,2,3-Trichloropropane</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>orl-mus 2402mg/kg</td></t<>	44.	1,2,3-Trichloropropane																orl-mus 2402mg/kg
44. Bromobenizene 35182 0.005 5.00 40019.0 2000 NA NA C.0.17 NA NA 2000.0 10.4 11.49.2 1																		ori-rat 149.6mg/kg
47. n=24yl benzene 35182 020821 0.05 5.00 40018.8 2000 NA NA 0.017 NA NA 2000.2 18.4 104-51-8 NA 48. Ethyl benzene 35182 020821 0.05 5.00 40000.9 2000 NA NA 0.017 NA NA 18.4 104-51-8 NA 49. Pisoprop/foluene 35182 020821 0.05 5.00 40000.4 2000 NA NA 0.017 NA NA 2002.2 18.4 100-41-4 100 pmr (30mp/m30H) ort-red 50. Maphthalene 35162 020821 0.05 5.00 40002.2 2000 NA NA 0.017 NA NA 2001.0 18.4 100-42-5 100 pmr (30mp/m30H) ort-red 51. Strane 35162 020821 0.05 5.00 40002.4 2000 NA NA 0.017 NA NA 2001.0 18.4 164-83-3 2002 pmr ort-red 51. 1.24-Trintelhylbenzene 35162 020821 <t< td=""><td>48.</td><td>Bromobenzene</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>orf-rat 4894mg/kg</td></t<>	48.	Bromobenzene																orf-rat 4894mg/kg
44. Ethylbenzene 35162 020621 0.05 5.00 4000.0.9 2000 NA NA 0.017 NA NA 100-11-5 100-ptr 100 ptr (43.6) 49. p-lagprop/foluene 35162 020821 0.05 5.00 40005.1 2000 NA NA 0.017 NA NA 2002.2 18.4 99-07-6 N/A ort-red 51. Styrene 35162 020821 0.05 5.00 40002.2 2000 NA NA 0.017 NA NA 2001.0 18.4 109-42-3 100 ptr (450mpin3844) ort-red 51. Styrene 35162 020821 0.05 5.00 40002.2 2000 NA NA 0.017 NA NA 2000.0 18.4 108-483-3 200 ptr ort-red 31.2,3-Trichorobenzene 35162 020821 0.05 5.00 40027.4 2000 NA NA 0.017 NA NA 200.3 18.4<	47.	n-Butyl benzene																orl-rat 2599mg/kg N/A
49. p::bgorg/id/duene 35162 020821 0.05 5.00 40066.4 2000 NA NA 0.017 NA NA 2002.7 18.4 99-87-8 N/A oft-rail 60. Naphthalene 35162 020821 0.05 5.00 40006.1 2000 NA NA 0.017 NA NA 2000.2 18.3 91-20-3 10 ppm (50mp/m38H) oft-rail 51. Stymene 35162 020821 0.05 5.00 40008.9 2000 NA NA 0.017 NA NA 2001.3 18.4 100-42-5 100 ppm (50mp/m38H) oft-rail 52. Toluene 35162 020821 0.05 5.00 40002.2 2000 NA NA 0.017 NA NA 2001.3 18.4 100-42-5 100 ppm (41/00mp/m38H) oft-rail 1.2.4-Trichiotrobenzene 35162 020821 0.05 5.00 40012.4 2000 NA NA 0.017 NA NA 2001.3 18.4 12.6-3 N/A oft-rail 5.01 40012.4 2000 NA<																		orl-rat>2000mg/kg
50. Naghthalene 35162 020821 0.05 5.00 40005.1 2000 NA NA 0.017 NA NA 200.2 18.3 91-20-3 10 ppm (dompins/left) 51. Shyrene 35162 020821 0.05 5.00 40002.8 2000 NA NA 0.017 NA NA 2001.0 18.4 100-42-5 100 ppm (dompins/left) 53. 1.2.3-Trichlorobenzene 35162 020821 0.05 5.00 40002.0 2000 NA NA 0.017 NA NA 2000.0 14.4 100-42-5 100 ppm (dompins/left) 54. 1.2.4-Trichlorobenzene 35162 020821 0.05 5.00 40012.4 2000 NA NA 0.017 NA NA 200.0 1.4 17.4 12.4-Trichlorobenzene 35162 020821 0.05 5.00 40011.5 2000 NA NA 0.017 NA NA 200.5 18.4 120-8-8-8 N/A ort-rat	49.	p-isopropyl toluene	35162	020821	0.05	5.00	40056.4	2000	NA								the second s	orl-rat 4750mg/kg
S1, Styrene 35162 020821 0.05 5.00 40022.8 2000 NA NA 0.017 NA NA 2001.0 18.4 100-42.5 100 ppm off-ret 52. Toluane 35162 020821 0.05 5.00 40002.9 2000 NA NA 0.017 NA NA 2000.0 18.4 109-42.5 100 ppm off-ret 51. 1.2,3-Trichlorobenzene 35162 020821 0.05 5.00 40022.4 2000 NA NA 0.017 NA NA 2001.3 18.4 120-42.5 ppm (04-42.5) 100 ppm (04-42.5) ppm (04-42.5) 100 ppm (04-42.5)					0.05	5.00			NA									orl-rat 490mg/kg
62. Toluene 36162 020821 0.05 5.00 40008.9 2000 NA NA 0.017 NA NA 2000.3 18.4 108-88-3 200 ppm off-ref 53. 1.2.3-Trichloroberzene 35162 020821 0.05 5.00 40002.7.4 2000 NA NA 0.017 NA NA 2001.3 18.4 120-82-1 5 ppm (CL) (40mp/m3) ort-ref 55. 1.2.4-Trichloroberzene 35162 020821 0.05 5.00 40012.4 2000 NA NA 0.017 NA NA 2001.5 18.4 120-82-1 5 ppm (CL) (40mp/m3) ort-ref 55. 1.2.4-Trimethylberzene 35162 020821 0.05 5.00 40012.4 2000 NA NA 0.017 NA NA 2000.5 18.5 100-67-8 NA ort-ref 5.00 40021.8 2000 NA NA 0.017 NA NA 2000.2 18.4 100-66 NA								2000										orl-rat 5000mg/kg
Ost I_22-intendendendence 39182 D202821 0.05 5.00 400027.4 2000 NA NA 0.017 NA NA 2001.0 18.4 87-61-6 NA (stemp) 55. 1.2.4-Trineithylbenzene 35162 020821 0.05 5.00 40012.4 2000 NA NA 0.017 NA NA 2001.3 18.4 120-82-1 5 ppm (CL) (40mg/m3) orteat 55. 1.2.4-Trimethylbenzene 35162 020821 0.05 5.00 40012.4 2000 NA NA 0.017 NA NA 2000.5 18.5 106-67-8 NA ort-rat 56. tort-Butyl benzene 36162 020821 0.05 5.00 40021.8 2000 NA NA 0.017 NA NA 2000.2 18.4 108-98-8 100 ppm (43mg/m3/H) ort-rat 58. tert-Butyl benzene 35163 022521 0.05 5.00 40001.7 NA 0.017 NA NA </td <td></td> <td>0.017</td> <td>NA</td> <td>NA</td> <td>2000.3</td> <td></td> <td>108-88-3</td> <td></td> <td>orl-rat 5000mg/kg</td>											0.017	NA	NA	2000.3		108-88-3		orl-rat 5000mg/kg
3.1. 1.2.4-Interformative 30162 0.20821 0.05 5.00 40027.4 2000 NA NA 0.017 NA NA 2001.3 18.4 120-82-1 5.ppm (CL) (40mg/m3) often 55. 1.2.4-Intendityloenzene 35162 020821 0.05 5.00 40011.5 2000 NA NA 0.017 NA NA 2000.5 18.4 95-63-6 NA oft-net 56. 1.3.5-Trimethylbenzene 35162 020821 0.05 5.00 40011.8 2000 NA NA 0.017 NA NA 200.5 18.4 108-38-3 100 ppm (43img/m3/8H) oft-net 59. asc-Butyl benzene 35163 022521 0.05 5.00 40011.7 2000 NA NA 0.017 NA NA 2000.5 18.4 198-98-8 NA 101 50. 40011.7 2000 NA NA 0.017 NA NA 2000.6 18.4 198-98-8 NA<															18.4	87-61-6		ipr-mus 1390mg/kg
30. 1.2.4-Intreletiplenzene 35162 0.20821 0.05 5.00 40011.4 2000 NA NA 0.017 NA NA 2000.6 18.4 95-83-6 NA ort-rel 57. m-Xylene 35162 020821 0.05 5.00 40011.5 2000 NA NA 0.017 NA NA 2001.0 18.4 106-67-8 NA ort-rel 57. m-Xylene 35162 020821 0.05 5.00 40012.1.8 2000 NA NA 0.017 NA NA 2001.0 18.4 106-67-8 NA ort-rel 58. tert-Butyl benzene 35163 022521 0.05 5.00 40017.7 ZON NA NA 0.017 NA NA 2000.2 18.4 96-06-6 N/A NA ort-rel 60. Chlorobenzene 35163 022521 0.05 5.00 40002.0 2000 NA NA 0.017 NA NA 2000.0 18.4 106-90-7 75 ppm (350mpin3/014) ort-ret 36.62 4001.																	5 ppm (CL) (40mg/m3)	orl-rat 756mg/kg
Sr. The View Constraint																		orl-mt 5g/kg
58. tert-Butyl berzene 36163 022521 0.05 5.00 40005.9 2000 NA NA 0.017 NA NA 2000.2 16.4 98-06-6 IVA IVA 59. sec-Butyl berzene 35163 022521 0.05 5.00 40001.7 2000 NA NA 0.017 NA NA 2000.2 16.4 98-06-6 IVA 16.4 98-06-06 16.4																		ori-rat 5000mg/kg
59. asc-Butyl benzene 35163 022521 0.05 5.00 40011.7 2000 NA NA 0.017 NA NA 2000.5 18.4 135-89-8 N/A ortrait 60. Chlorobenzene 35163 022521 0.05 5.00 40001.7 2000 NA NA 0.017 NA NA 2000.6 18.4 135-89-8 N/A ortrait 60. Chlorobenzene 35163 022521 0.05 5.00 40000.2.0 2000 NA NA 0.017 NA NA 2000.4 18.4 198-99-7 75 ppm (550mptr0.014) ortrait 62. 4-Chloroboluene 35183 022521 0.05 5.00 40000.4 2000 NA NA 0.017 NA NA 2000.1 18.4 196-49-4 N/A 0.017 NA NA 2000.1 18.4 196-50-1 N/A 0/A N/A 0.017 NA NA 2000.1 18.4 196-50-1																		orl-rat 5g/kg
60. Chlorobenzene 35163 022521 0.05 5.00 40009.0 2000 NA NA 0.017 NA NA 2000.4 18.4 108-80-7 75 ppm (350mg/m3/84) orrang 61. 2-Chloroboluene 35163 022521 0.05 5.00 40002.0 2000 NA NA 0.017 NA NA 2000.0 18.4 108-80-7 75 ppm (350mg/m3/84) orrang 62. 4-Chloroboluene 35163 022521 0.05 5.00 40002.0 2000 NA NA 0.017 NA NA 1989.9 18.4 106-43-4 NA orrang 63. 1_2-Dichlorobenzene 35163 022521 0.05 5.00 40004.0 2000 NA NA 0.017 NA NA 2000.1 18.4 96-43-4 NA orrang 64. 1_3-Dichlorobenzene 35163 022521 0.05 5.00 40007.4 2000 NA NA 0.017 NA																		N/A
61. 2-Chlorotoluene 35183 022521 0.05 5.00 40002.0 2000 NA NA 0.017 NA NA 108-49-6 50 pm (350mg/m0.41) ortrat 62. 4-Chkorotoluene 35183 022521 0.05 5.00 40004.4 2000 NA NA 0.017 NA NA 198-99 18.4 108-43-4 N/A ortrat 63. 1_2-Dichlorobenzene 35163 022521 0.05 5.00 40004.0 2000 NA NA 0.017 NA NA 1989.9 18.4 108-43-4 N/A ortrat 2 63. 1_2-Dichlorobenzene 35163 022521 0.05 5.00 40004.0 2000 NA NA 0.017 NA NA 2000.1 18.4 108-43-4 N/A ortrat 2 65. 1.4-Dichlorobenzene 35183 022521 0.05 5.00 40003.0 2000 NA NA 0.017 NA NA </td <td></td> <td>ori-rat 2240mg/kg</td>																		ori-rat 2240mg/kg
62. 4-Chiorotoluarine 36183 022521 0.05 5.00 40000.4 2000 NA NA 100-117 NA NA 100-90.1 18.4 106-43-4 N/A 0.017 63. 1_2-Olchkorobenzene 35183 022521 0.05 5.00 40000.4 2000 NA NA 0.017 NA NA 2000.1 18.4 106-43-4 N/A 0.017 NA NA 2000.1 18.4 106-46.7 75 ppm (300mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/m																		orl-rat 2290mg/kg
63. 1_2-Dichlorobenzene 35183 022521 0.05 5.00 40004.0 2000 NA NA 0.017 NA NA 2000.1 18.4 95-50-1 50pm (300mpm)(0L) oritrat 64. 1,3-Dichlorobenzene 35183 022521 0.05 5.00 40003.6 2000 NA NA 0.017 NA NA 2000.1 18.4 95-50-1 50pm (300mpm)(0L) oritrat 64. 1,3-Dichlorobenzene 35183 022521 0.05 5.00 40005.0 2000 NA NA 0.017 NA NA 2000.1 18.4 95-50-1 50pm (300mpm)(0L) oritrat 65.1 40007.6 2000 NA NA 0.017 NA NA 2000.2 18.4 106-48-7 75 ppm (450mpm)(10.101-11) oritrat 66. isopropy/benzene 35163 022521 0.05 5.00 40007.4 2000 NA 0.017 NA NA 2000.1 18.4 108-48-7 75 ppm (450mp/m3/H) <																		orl-rat 3900mg/kg
64. 1,3-Dichlorobenzene 35183 022521 0.05 5.00 40003,6 2000 NA NA 0.017 NA NA 2000,1 18.4 540-50-7 2000 pm (sking/m0) (cL) oright 65. 1,4-Dichlorobenzene 35183 022521 0.05 5.00 40003,6 2000 NA NA 0.017 NA NA 2000,1 18.4 547-3-1 N/A permus 65. 1,4-Dichlorobenzene 35183 022521 0.05 5.00 40007,4 2000 NA NA 0.017 NA NA 2000,2 18.4 108-48-7 75 ppm (450mptm0)/// 0.017+mat 1.07 NA NA 2000,3 18.4 98-82-8 80 ppm (2450mt// 0.017+mat 1.07 NA NA 2000,3 18.4 108-48-7 75 ppm (450mptm0)// 0.017+mat 1.07 NA NA 2000,3 18.4 108-85-1 NA 1.01+mat 1.01+mat 1.01+mat 1.01+mat 1.01+mat 1.01+mat 1.01+mat 1.01+mat	_																	orl-rat 2100mg/kg
66. 1,4-Dichlorobenzene 35183 022521 0.05 5.00 40005.0 2000 NA NA 0.017 NA NA 2000.2 16.4 104-87 75 pm (Morgandrame) 88. legorgp/benzene 35183 022521 0.05 5.00 40004.4 2000 NA NA 0.017 NA NA 2000.3 18.4 106-87.7 76 pm (Morgandrame) ortrait 10.7 0.717 NA NA 2000.3 18.4 98-82-8 60 pm (245mg/m3/MH) oft-rait 66. -7. n-Propybenzene 35183 022521 0.05 5.00 40004.8 2000 NA NA 0.017 NA NA 2000.1 18.4 103-85-1 NA oft-rait 68. -C-Xylene 35183 022521 0.05 5.00 40003.0 2000 NA NA 0.017 NA NA 2000.1 18.4 103-85-1 NA oft-rait 66.8 -Xylene 36183 0225621 0.05																		ori-rat 500mg/kg
66. Isopropy/benzene 35163 022521 0.05 5.00 40007.4 2000 NA NA 0.017 NA NA 2000.3 18.4 96-82-8 50 pm (245mg/m3/MH) ori-rational contractional contreductine contreductional contreductional contractional contracti																		pr-mus 1062mg/kg ori-ret 500mg/kg
67. <u>n-Propylbenzene</u> 35163 022521 0.05 5.00 40004.8 2000 NA NA 0.017 NA NA 2000.1 18.4 103-65-1 NA 04-ret 6 68. <u>o-Xylene</u> 35183 022521 0.05 5.00 40003.0 2000 NA NA 0.017 NA NA 2000.1 18.4 96-47-6 100 pm (435mg/m3/8H) [m-mus	68.]	sopropylbenzene	35163															orl-rat 1400mg/kg
68. p-Xylene 35163 022521 0.05 5.00 40003.0 2000 NA NA 0.017 NA NA 2000.1 18,4 95-47-6 100 ppm (435mg/m3/8H) pr-mus	67. r	-Propybenzene																ori-rat 8040mg/kg
				022521 (0.05	5.00						NA						ipr-mus 1364mg/kg
	69. j	-Xylene	35183	022521 (0.05	5.00	40005.0	2000	NA	NA		NA						orl-rat 5g/kg

The cartified value is the concentration orientated from gravimetric and volumetric measurements unless otherwise stated,
 Standards are propared gravimetrically using bulances that are calibrated with weights trancable to NIST (see abave),
 Standards, etc. are orified (e) 1.05% of the stated volues, melses otherwise stated,
 all Standards, etter organing angues, should be stored with regulations for Evolution and and the store origin of the state of the

Certified Reference Material CRM

Run 22, "P95317 L042921 [2000µg/mL in MeOH]"	Path	Analyta	FED RT
Run Length: 60.00 min, 35999 points at 10 points/second. Created: Thu, Apr 29, 2021 at 3:49:30 PM. Sampled: Sequence "042521-GC5M1", Method "GC5-M1". Analyzed using Method "GC5-M1".	23456785	Bher 11.2 tradione-12.2 turfliconestance 11.3 obtained Schemitzine	8.48 8.90 5.51 10.44 10.71 13.92 11.51 12.55 14.28
Comments GC5-M1 Analysis by Candice Warren Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min., Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min. Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.), Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C. FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=4	11 12 13 14 10 15 17 18 29 20 21 22 23 24 25	3,201500000000000000000000000000000000000	16.33 16.35 17.14 18.32 19.06 19.36 20.10 22.73 22.92 23.75 23.98 24.16 25.71 26.71 26.71 27.50
400000-	25 27 28 30 31 32 33 33 34 33	1.1.3-Profilosoftane Testenchiares/bearses/barses/barses Discretecharonathane 1.2-Obsenostane Ethylosensee(1,1,1,1,3-Tetrachiseestikare ex-Sylatar (p-Sylana o-Sylatar Sylfeid Sacewarthastisted (Framoferm	28.04 28.92 29.79 30.45 31.89 32.07 32.33 33.87 34.04 35.14
300000-	36 37 38 39 40 41 42	Logical Control - 2-Colore Li, 2, 3-Fricklergrouten Li, 2, 3-Fricklergrouten Li, 2, 3-Fricklergrouten Li, 2, 3-Fricklergrouten Li, 3, 5-Fricklergrouten Li, 3, 5-	35.49 35.90 36.58 36.59 38.73 37.17 37.38
रू 200000- मिन्द्र स्थिति	43 42 45 46 47 46 47 46 49 90	ter: BrzNerstein 3.26-franktigkonsans/Pentachierverbane sec.64/ptbuszes p-lestprojytausne 1.4-Dichlorobarzere 1.4-Dichlorobarzere m-Buz/Nestzene	38.41 38.55 39,16 39,68 40.01 40.42 41.42 41.15 41.15
	51 52 53 54 55	1,2-010rem-3-0189rg/mgahe Norozanizani 1,2,4-Trostanisaria Hexasiri-odact/decis Hexasiri-odact/decis 1,2,1-Trochkorobestefes	44,48 45,84 47,86 48,29 48,26 48,26
0 10 20 30 40 50 Min			

Methanol-SDS.xls

PO Box 5585 Hamden, CT 06518-0585

Printed: 1/25/23

	Safety Data Sheet (SDS)	GHS/OSHA Co	mpliant	
Section I Product and Co	ompany Identification			
IDENTITY ANALYTI	ICAL STANDARD DISSOLVED IN M	ETHANOL		
Manufacturer's Name Address	ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514	Emergency Tele	ephone USA & CANADA ephone International	1-800-535-5053 1-352-323-3500
Section II - Hazards Iden		Baterreparea		January 1, 2022
	GHS Classification in accore	dance with 29 CF	R 1910 (OSHA HCS)	
H225 Highly Fla	ammable Liquid and Vapor		Toxic if swallowed, skin cont	act. inhaled
	mage to organs	H351 P280	Suspected of causing cance	r
	, wash with soap and water	P305,351,338	Use gloves, eye protection/fa If in eyes, remove contacts, r	ice snelld inse with water
۵ 🔅 🌾	Signal Word: DANGER			
Section III - Composition				
Components (Specific Che Methanol	mical Identity; Common Name(s)) METHYL ALCOHOL	CAS#: 67-56-1		% (optional) > 97
See Certified Weight F	Report For Other Analytes Pre	esent At Trace	Quantities.	
INTENDED USE: REFERE				
Section IV. FIRST AID ME	ASURES			
General advice If inhaled n case of skin contact n case of eye contact f swallowed	Consult a physician. Show this safety data If inhaled, move person into fresh air. If no Wash with soap and water. Consult a phy Rinse thoroughly with plenty of water for a Do NOT induce vomiting. Rinse mouth wit	ot breathing, give artifi sician. It least 15 minutes an	icial respiration. Consult a physician. d consult a physician.	
	•	n water. Consult a ph	ysician.	
Section V. FIREFIGHTING		n water. Consult a ph	ysician.	
Section V. FIREFIGHTING Flammability Suitable extinguishing media Protective equipment for fire	MEASURES	ce of ignition when the No smoking. am, dry chemical or ca	e temperature is above the flash point.	Keep away from
Flammability Suitable extinguishing media Protective equipment for fire	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara	ce of ignition when the No smoking. am, dry chemical or ca	e temperature is above the flash point.	Keep away from
Flammability Buitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES	ce of ignition when the No smoking. am, dry chemical or ca tus for fire fighting if i	e temperature is above the flash point. arbon dioxide. necessary.	
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo	ce of ignition when the No smoking. am, dry chemical or ca tus for fire fighting if i tus for fire fighting if i g vapors, mist or gas sive concentrations.	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove	
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foa Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathin	ce of ignition when the No smoking. Im, dry chemical or ce tus for fire fighting if i tus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pri	e temperature is above the flash point. arbon dioxide. necessary. Ensure adequate ventilation. Remove oduct enter drains.	e all sources of
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions invironmental precautions Flean up	MEASURES Flammable in the presence of a source 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 place	ce of ignition when the No smoking. Im, dry chemical or ce tus for fire fighting if i tus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pri	e temperature is above the flash point. arbon dioxide. necessary. Ensure adequate ventilation. Remove oduct enter drains.	e all sources of
Flammability Suitable extinguishing media	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i ng vapors, mist or gas sive concentrations. o do so. Do not let pri e in container for disp	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling	MEASURES Flammable in the presence of a source 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 place ID STORAGE	ce of ignition when the No smoking. Im, dry chemical or ca itus for fire fighting if i ng vapors, mist or gas sive concentrations. o do so. Do not let pn e in container for disp id inhalation of vapou	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a	ce of ignition when the No smoking. am, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pri e in container for disp id inhalation of vapou ies of ignition. No sm and well-ventilated pla	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions Exercion VIII. EXPOSURE C Lethanol 67-56-1 TWA 2	MEASURES Flammable in the presence of a source heat/sparks/open flame/hot surface. Use water spray, alcohol-resistant foat Wear self contained breathing appara RELEASE MEASURES Wear respiratory protection. Avoid breathing ignition. Vapours accumulate to form explo Prevent further leakage or spillage if safe to Contain spillage, and then collect and place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry of and kept upright to prevent leakage. DNTROLS/PERSONAL PROTECTION 200 ppm	ce of ignition when the No smoking. am, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pri e in container for disp id inhalation of vapou ies of ignition. No sm and well-ventilated pla	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Invironmental precautions Invironmental precautions Idean up Section VII. HANDLING AN recautions for safe handling torage Conditions Ection VIII. EXPOSURE C Idethanol 67-56-1 TWA 200 ppm	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION 200 ppm	ce of ignition when the No smoking. am, dry chemical or ca itus for fire fighting if i g vapors, mist or gas sive concentrations. o do so. Do not let pri e in container for disp id inhalation of vapou ies of ignition. No sm and well-ventilated pla	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. nosal according to local regulations (se r or mist.	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions Election VIII. EXPOSURE C Elethanol 67-56-1 TWA 2 kin notation TWA 200 ppm otential for skin absorption , inge ersonal protective equipment	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION 200 ppm	ce of ignition when the No smoking. Im, dry chemical or ca atus for fire fighting if i ing vapors, mist or gas sive concentrations. o do so. Do not let pri- e in container for disp id inhalation of vapou id inhalation. No sm and well-ventilated pla ON	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. losal according to local regulations (se r or mist. oking. Prevent the build up of electrost ace. Containers which are opened mus	e all sources of e section 13).
Flammability Suitable extinguishing media Protective equipment for fire Section VI. ACCIDENTAL F Personal precautions Environmental precautions Elean up Section VII. HANDLING AN recautions for safe handling torage Conditions Election VIII. EXPOSURE C Elethanol 67-56-1 TWA 2 kin notation TWA 200 ppm otential for skin absorption , inge ersonal protective equipment	MEASURES Flammable in the presence of a source 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 place ID STORAGE Avoid contact with skin and eyes. Avoid Use ventilation Keep away from source Keep container tightly closed in a dry a and kept upright to prevent leakage. ONTROLS/PERSONAL PROTECTION Stion and inhalation. Respiratory protection Handle with glovess clothing. Wash hands thoroughly after hand	ce of ignition when the No smoking. Im, dry chemical or ca atus for fire fighting if i ing vapors, mist or gas sive concentrations. o do so. Do not let pri- e in container for disp id inhalation of vapou id inhalation. No sm and well-ventilated pla ON	e temperature is above the flash point. arbon dioxide. necessary. . Ensure adequate ventilation. Remove oduct enter drains. losal according to local regulations (se r or mist. oking. Prevent the build up of electrost ace. Containers which are opened mus	e all sources of e section 13).

Page 1 of 2

Absolute Standards	Inc.		PO Box 5585 Hamden, CT 06518-0585	Phone: 203-281-2917 FAX: 203-281-2922
Boiling Point		65°C	Specific Gravity (H2O = 1)	0.79
Vapor Pressure (mm Hg)		96	Melting Point	-98°C
Vapor Density (AIR = 1)		1.11	Evaporation rate (Butyl Acetate = 1)	4.6
Solubility in Water	COMPLETE			
Appearance and Odor	CLEAR, COLORLI	ESS LIQUID W	ITH CHARACTERISTIC PUNGENT ODC	DR.
Section X. STABILITY AN	ID REACTIVITY			
Chemical stability	Stable under reco	ommended storag	e conditions.	

 Possibility of hazardous reactions
 Vapours may form explosive mixture with air.

 Conditions to avoid
 Heat, flames, sparks, extreme temperature and sunlight.

 Materials to avoid
 Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

 Hazardous decomposition products formed under fire conditions. - Carbon oxides
 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 WEIGHT REPORT Part Number: Lot Number: Description:	<mark>91980</mark> 062823 Acrolein		Solvent(s): Lot# Water 1024220	1# 220	Gebriel	il Welland	062823
Expiration Date: 072823 Recommended Storage: Refrigerati Nominal Concentration (<i>Jug/mL</i>): 5000 NIST Test iD#: 6UTB Weidht(s) shown below were combined and diluted to (mL):	072823 Refrigerate (4 °C) 5000 6UTB d diluted to (mL): 10.0	5E-05 Balance Uncertainty 0.001 Flack Uncertainty	2		Formulated By: Reviewed By:	Gabriel Helland	DATE 062823 DATE
Compound	CONC	Purity (96)	Target Actual Weight(g) Weight(g)	ual Actual ht(g) Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/ml.)	SDS Information (Solvent Safety Info. On Attached pg.) CAS# 05HA PEL (TWA) LD5	hed pg.) toso
1. Acroleln 5 103755R09M 5000 97.1 0.5 0.05160 0.05165 5004.4 52.5 107-02-8 0.1 ppm c Method: GC6MSD-1. Detector: Mass Selective Detector (Scena mode). Column: Vocol (60m X 0.25mm ID X 1.5m film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2-200°C (Time 2 = 8.75 min.) Ratic = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Retutes. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term scorase is not recommended. Please contact mean rechinal demonteries is manifered. 0.05165 5004.4 52.5 107-02-8 0.1 ppm C	5 103755R09M 5000 ive Detector (Scan mode). Column: fector Temp. = 220°C. Analyst: Pedr fector temp. = 220°C. Analyst: Pedr	97.1 0.5 Vocol (60m X 0.25mm ID X 1. or Rentas. NOTE: Due to the in orthere information is monitord	0.05160 0.05165 Sym film thickness). Oven Pristability of acrolein in solution	165 5004.4 an Profile: Temp. 1 = 35 bution, all solutions of ac	52.5 107-02-8 *C (Time 1 = 10min.), Temp rolein, and any dilutions ther	0.1 ppm .2=200°C (Time 2 = 8.75 mir vof, should be used immediate	ort-rat 46mg/kg
Abundance TIC: [B:	TIC: [BSB2]79005.D		Abundance	Scan 2:	Scan 232 (8.927 min): [BSB2]79005.D	/2]79005.D	1
250000 8.93			60000				
20000	0// //	0	20000	20			
150000			40000				
100000			30000 20000				
5000			10000	37			
Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40.00 45.	00 50.00 55.00 60.00	ж ^{m/z>0} 20	44 30 40 50	65 75 85 60 70 80 90 10	119 158 169 90 100 110 120 130 140 150 160 170	158 169 50 160 170
 The ce Standa Standa All State Uncert NIST 	 The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above). Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated. All Standards, after opening amput, should be stored with easy find 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). 	kulated from gravimetric and sling balances that are calibra ated value, unless otherwise si did he stored with caps tight a Kuyat, C.E., "Guidelines for " tent Printing Office, Washing	l volumetric measureme ted with weights traceal bated. And under appropriate la Evaluating and Express on, DC, (1994).	rats unless otherwise si ble to NIST (see above) boratory conditions. ing the Uncertainty of	ated. NIST Measurement Result	÷.	

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Lot # 062823 Part # 91980

PO Box 5585 Hamden, CT 06518-0585

Safety Data Sheet (SDS) **GHS/OSHA** Compliant Section | Product and Company Identification IDENTITY ANALYTICAL STANDARD DISSOLVED IN WATER ABSOLUTE STANDARDS INC Manufacturer's Name 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 May 1, 2022 Section II - Hazards Identification GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) P271 H315 Use in ventilated area Causes skin and eye irritation. P302,332 If on skin, wash with soap and water P280 Use gloves, eye protection/face sheild P305,351,338 If in eyes, remove contacts, rinse with water Signal Word: DANGER Section III - Composition Components (Specific Chemical Identity; Common Name(s)) % (optional) CAS#: 7732-18-5 Water > 97See Certified Weight Report For Other Analytes Present At Trace Quantities. INTENDED USE: REFERENCE MATERIAL Section IV. FIRST AID MEASURES General advice Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area. If inhaled 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. Section V. FIREFIGHTING MEASURES 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. Hazardous Decomposition products Carbon oxides 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. Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Environmental precautions Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13). Clean up Section VII. HANDLING AND STORAGE Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION Water CAS#: 7732-18-5 TWA: 500 ppm Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eve protection Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS Specific Gravity (H2O = 1) **Boiling Point** 100°C 1 Vapor Pressure (mm Hg) Melting Point

Absolute Standards Inc.	Ha	PO Box 5585 amden, CT 06518-0585	Phone: 203-281-2917 FAX: 203-281-2922
1	NA		0°C
Vapor Density (AIR = 1)	NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water Completely miscible			
Appearance and Odor CLEAR, COLORLESS	LIQUID WIT	TH SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND REACTIVITY			
Chemical stability Stable under recom	mended storag	ge conditions.	
Possibility of hazardous reactions NA Conditions to avoid NA			
Materials to avoid NA			
Hazardous decomposition products - No data available			
Section XI. TOXICOLOGICAL INFORMATION			
LD50 Oral - Rat NA			
_C50 Inhalation - Rat NA			
LD50 Dermal - Guinea pig NA Causes skin irritation.			
Eye irritation			
Section XII. ECOLOGICAL INFORMATION			
LC50 NA			
EC50 NA			
Section XIII. DISPOSAL CONSIDERATIONS			
Dispose with normal Laboratory Solvent Waste.			
Section XIV. TRANSPORT INFORMATION			
DOT (US)		ΙΑΤΑ	
Not dangerous goods		Not dangerous goods Proper shipping name: Water	
Proper shipping name: Water		Froper 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 adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

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Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com		Certified I	Certified Reference Material CRM	erial CRM			ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	<mark>91980</mark> 062823 Acrolein		Solvent(s): Lot# Water 1024220	1# 220	Gebriel	il Welland	062823
Expiration Date: 072823 Recommended Storage: Refrigerati Nominal Concentration (<i>Jug/mL</i>): 5000 NIST Test iD#: 6UTB Weidht(s) shown below were combined and diluted to (mL):	072823 Refrigerate (4 °C) 5000 6UTB d diluted to (mL): 10.0	5E-05 Balance Uncertainty 0.001 Flack Uncertainty	2		Formulated By: Reviewed By:	Gabriel Helland	DATE 062823 DATE
Compound	CONC	Purity (96)	Target Actual Weight(g) Weight(g)	ual Actual ht(g) Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/ml.)	SDS Information (Solvent Safety Info. On Attached pg.) CAS# 05HA PEL (TWA) LD5	hed pg.) toso
1. Acroleln 5 103755R09M 5000 97.1 0.5 0.05160 0.05165 5004.4 52.5 107-02-8 0.1 ppm c Method: GC6MSD-1. Detector: Mass Selective Detector (Scena mode). Column: Vocol (60m X 0.25mm ID X 1.5mm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2-200°C (Time 2 = 8.75 min.) Ratte = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Returns. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term scorase is not recommended. Please contact mean rechinal demonment if much information is maniformed across in the machine of the machine information is across. 0.05165 5004.4 52.5 107-02-8 0.1 ppm C	5 103755R09M 5000 ive Detector (Scan mode). Column: fector Temp. = 220°C. Analyst: Pedr fector temp. = 220°C. Analyst: Pedr	97.1 0.5 Vocol (60m X 0.25mm ID X 1. or Rentas. NOTE: Due to the in orthere information is monitord	0.05160 0.05165 Sym film thickness). Oven Pristability of acrolein in solution	165 5004.4 an Profile: Temp. 1 = 35 bution, all solutions of ac	52.5 107-02-8 *C (Time 1 = 10min.), Temp rolein, and any dilutions ther	0.1 ppm .2=200°C (Time 2 = 8.75 mir vof, should be used immediate	ort-rat 46mg/kg
Abundance TIC: [B:	TIC: [BSB2]79005.D		Abundance	Scan 2	Scan 232 (8.927 min): [BSB2]79005.D	/2]79005.D	1
250000 8.93			60000				
20000	0// //	0	20000	20			
150000			40000				
100000			30000 20000				
5000			10000	37			
Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40.00 45.	00 50.00 55.00 60.00	ж ^{m/z>0} 20	44 30 40 50	65 75 85 60 70 80 90 10	119 158 169 90 100 110 120 130 140 150 160 170	158 169 50 160 170
 The ce Standa Standa All State Uncert NIST 	 The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above). Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated. All Standards, after opening amput, should be stored with easy find 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). 	kulated from gravimetric and sling balances that are calibra ated value, unless otherwise si did he stored with caps tight a Kuyat, C.E., "Guidelines for " tent Printing Office, Washing	l volumetric measureme ted with weights traceal bated. And under appropriate la Evaluating and Express on, DC, (1994).	rats unless otherwise si ble to NIST (see above) boratory conditions. ing the Uncertainty of	ated. NIST Measurement Result	÷.	

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Lot # 062823 Part # 91980

PO Box 5585 Hamden, CT 06518-0585

Safety Data Sheet (SDS) **GHS/OSHA** Compliant Section | Product and Company Identification IDENTITY ANALYTICAL STANDARD DISSOLVED IN WATER ABSOLUTE STANDARDS INC Manufacturer's Name 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 May 1, 2022 Section II - Hazards Identification GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) P271 H315 Use in ventilated area Causes skin and eye irritation. P302,332 If on skin, wash with soap and water P280 Use gloves, eye protection/face sheild P305,351,338 If in eyes, remove contacts, rinse with water Signal Word: DANGER Section III - Composition Components (Specific Chemical Identity; Common Name(s)) % (optional) CAS#: 7732-18-5 Water > 97See Certified Weight Report For Other Analytes Present At Trace Quantities. INTENDED USE: REFERENCE MATERIAL Section IV. FIRST AID MEASURES General advice Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area. If inhaled 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. Section V. FIREFIGHTING MEASURES 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. Hazardous Decomposition products Carbon oxides 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. Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Environmental precautions Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13). Clean up Section VII. HANDLING AND STORAGE Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION Water CAS#: 7732-18-5 TWA: 500 ppm Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eve protection Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS Specific Gravity (H2O = 1) **Boiling Point** 100°C 1 Vapor Pressure (mm Hg) Melting Point

Absolute Standards Inc.	Ha	PO Box 5585 amden, CT 06518-0585	Phone: 203-281-2917 FAX: 203-281-2922
1	NA		0°C
Vapor Density (AIR = 1)	NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water Completely miscible			
Appearance and Odor CLEAR, COLORLESS	LIQUID WIT	TH SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND REACTIVITY			
Chemical stability Stable under recom	mended storag	ge conditions.	
Possibility of hazardous reactions NA Conditions to avoid NA			
Materials to avoid NA			
Hazardous decomposition products - No data available			
Section XI. TOXICOLOGICAL INFORMATION			
LD50 Oral - Rat NA			
_C50 Inhalation - Rat NA			
LD50 Dermal - Guinea pig NA Causes skin irritation.			
Eye irritation			
Section XII. ECOLOGICAL INFORMATION			
LC50 NA			
EC50 NA			
Section XIII. DISPOSAL CONSIDERATIONS			
Dispose with normal Laboratory Solvent Waste.			
Section XIV. TRANSPORT INFORMATION			
DOT (US)		ΙΑΤΑ	
Not dangerous goods		Not dangerous goods Proper shipping name: Water	
Proper shipping name: Water		Froper 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 adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

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Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com		Certified I	Certified Reference Material CRM	erial CRM			ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	<mark>91980</mark> 062823 Acrolein		Solvent(s): Lot# Water 1024220	1# 220	Gebriel	il Welland	062823
Expiration Date: 072823 Recommended Storage: Refrigerati Nominal Concentration (<i>Jug/mL</i>): 5000 NIST Test iD#: 6UTB Weidht(s) shown below were combined and diluted to (mL):	072823 Refrigerate (4 °C) 5000 6UTB d diluted to (mL): 10.0	5E-05 Balance Uncertainty 0.001 Flack Uncertainty	2		Formulated By: Reviewed By:	Gabriel Helland	DATE 062823 DATE
Compound	CONC	Purity (96)	Target Actual Weight(g) Weight(g)	ual Actual ht(g) Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/ml.)	SDS Information (Solvent Safety Info. On Attached pg.) CAS# 05HA PEL (TWA) LD5	hed pg.) toso
1. Acroleln 5 103755R09M 5000 97.1 0.5 0.05160 0.05165 5004.4 52.5 107-02-8 0.1 ppm c Method: GC6MSD-1. Detector: Mass Selective Detector (Scena mode). Column: Vocol (60m X 0.25mm ID X 1.5mm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2-200°C (Time 2 = 8.75 min.) Ratte = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Returns. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately Long term scorase is not recommended. Please contact mean rechinal demonment if much information is maniformed across in the machine of the machine information is across. 0.05165 5004.4 52.5 107-02-8 0.1 ppm C	5 103755R09M 5000 ive Detector (Scan mode). Column: fector Temp. = 220°C. Analyst: Pedr fector temp. = 220°C. Analyst: Pedr	97.1 0.5 Vocol (60m X 0.25mm ID X 1. or Rentas. NOTE: Due to the in orthere information is monitord	0.05160 0.05165 Sym film thickness). Oven Pristability of acrolein in solution	165 5004.4 an Profile: Temp. 1 = 35 bution, all solutions of ac	52.5 107-02-8 *C (Time 1 = 10min.), Temp rolein, and any dilutions ther	0.1 ppm .2=200°C (Time 2 = 8.75 mir vof, should be used immediate	ort-rat 46mg/kg
Abundance TIC: [B:	TIC: [BSB2]79005.D		Abundance	Scan 2	Scan 232 (8.927 min): [BSB2]79005.D	/2]79005.D	1
250000 8.93			60000				
20000	0// //	0	20000	20			
150000			40000				
100000			30000 20000				
5000			10000	37			
Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00	30.00 35.00 40.00 45.	00 50.00 55.00 60.00	ж ^{m/z>0} 20	44 30 40 50	65 75 85 60 70 80 90 10	119 158 169 90 100 110 120 130 140 150 160 170	158 169 50 160 170
 The ce Standa Standa All State Uncert NIST 	 The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above). Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated. All Standards, after opening amput, should be stored with easy find 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). 	kulated from gravimetric and sling balances that are calibra ated value, unless otherwise si did he stored with caps tight a Kuyat, C.E., "Guidelines for " tent Printing Office, Washing	l volumetric measureme ted with weights traceal bated. And under appropriate la Evaluating and Express on, DC, (1994).	rats unless otherwise si ble to NIST (see above) boratory conditions. ing the Uncertainty of	ated. NIST Measurement Result	÷.	

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Lot # 062823 Part # 91980

PO Box 5585 Hamden, CT 06518-0585

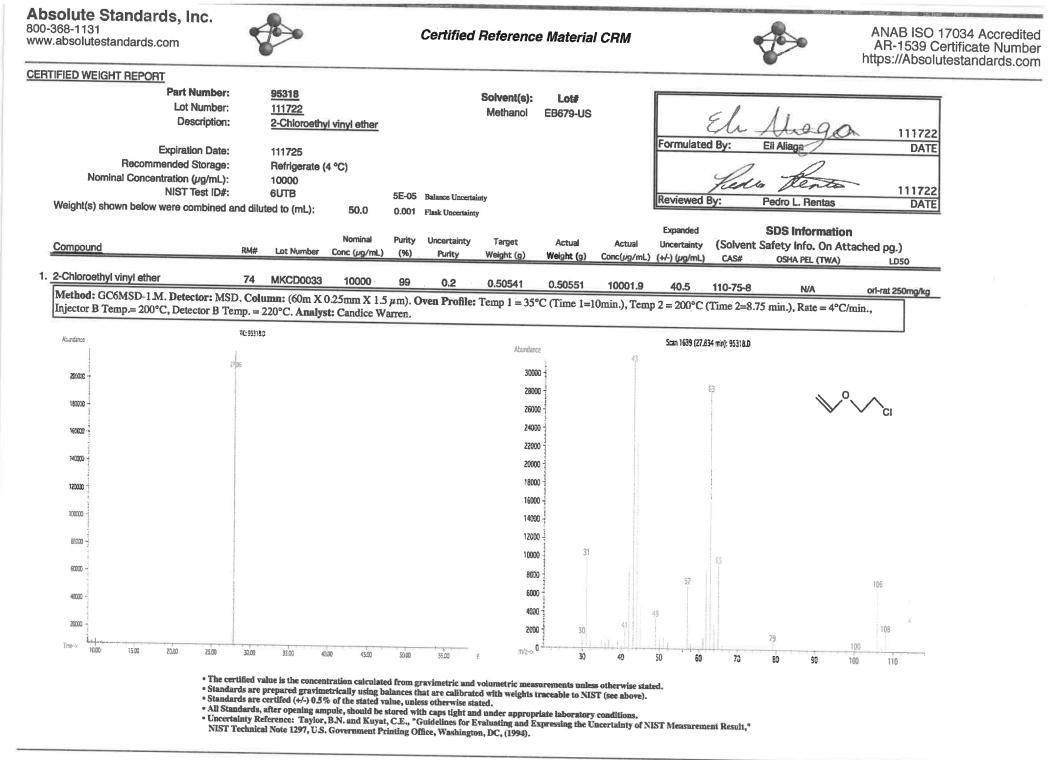
Safety Data Sheet (SDS) **GHS/OSHA** Compliant Section | Product and Company Identification IDENTITY ANALYTICAL STANDARD DISSOLVED IN WATER ABSOLUTE STANDARDS INC Manufacturer's Name Emergency Telephone USA & CANADA 1-800-535-5053 Address 44 Rossotto Dr. **Emergency Telephone International** 1-352-323-3500 Hamden CT, 06514 Date Prepared/Revised May 1, 2022 Section II - Hazards Identification GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) P271 H315 Use in ventilated area Causes skin and eye irritation. P302,332 If on skin, wash with soap and water P280 Use gloves, eye protection/face sheild P305,351,338 If in eyes, remove contacts, rinse with water Signal Word: DANGER Section III - Composition Components (Specific Chemical Identity; Common Name(s)) % (optional) CAS#: 7732-18-5 Water > 97See Certified Weight Report For Other Analytes Present At Trace Quantities. INTENDED USE: REFERENCE MATERIAL Section IV. FIRST AID MEASURES General advice Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area. If inhaled 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. Section V. FIREFIGHTING MEASURES 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. Hazardous Decomposition products Carbon oxides 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. Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Environmental precautions Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13). Clean up Section VII. HANDLING AND STORAGE Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Precautions for safe handling Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION Water CAS#: 7732-18-5 TWA: 500 ppm Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eve protection Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS Specific Gravity (H2O = 1) **Boiling Point** 100°C 1 Vapor Pressure (mm Hg) Melting Point

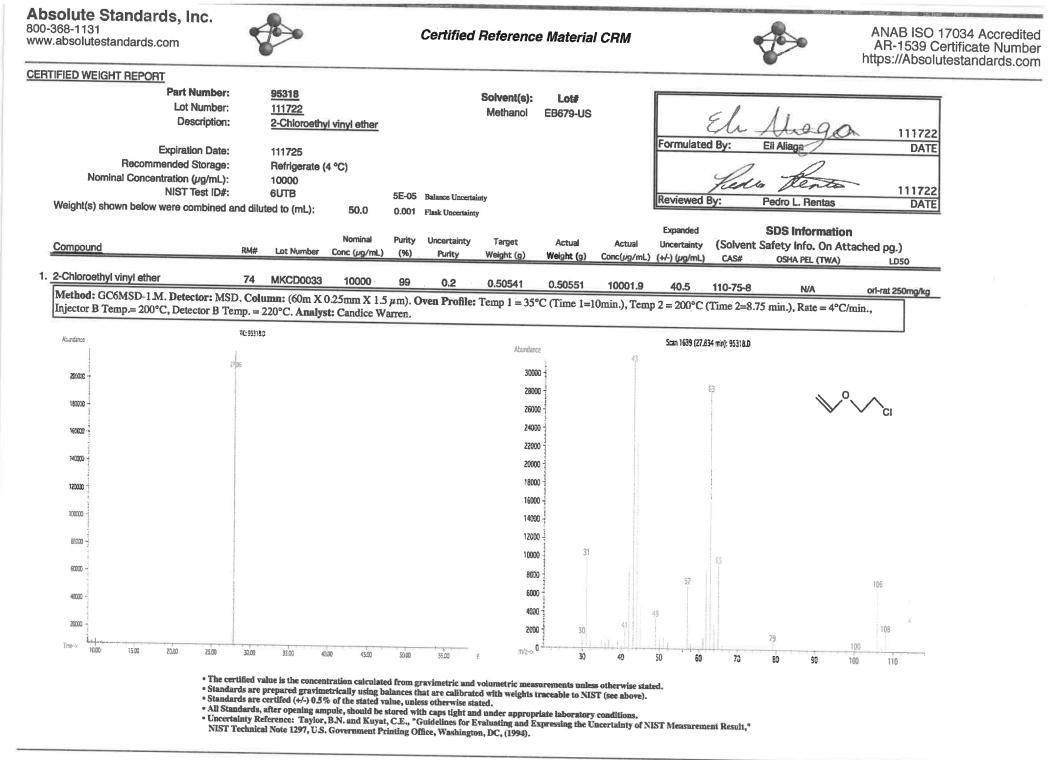
Absolute Standards Inc.	Ha	PO Box 5585 amden, CT 06518-0585	Phone: 203-281-2917 FAX: 203-281-2922
1	NA		0°C
Vapor Density (AIR = 1)	NA	Evaporation rate (Butyl Acetate = 1)	NA
Solubility in Water Completely miscible			
Appearance and Odor CLEAR, COLORLESS	LIQUID WIT	TH SLIGHT CHEMICAL ODOR.	
Section X. STABILITY AND REACTIVITY			
Chemical stability Stable under recom	mended storag	ge conditions.	
Possibility of hazardous reactions NA Conditions to avoid NA			
Materials to avoid NA			
Hazardous decomposition products - No data available			
Section XI. TOXICOLOGICAL INFORMATION			
LD50 Oral - Rat NA			
_C50 Inhalation - Rat NA			
LD50 Dermal - Guinea pig NA Causes skin irritation.			
Eye irritation			
Section XII. ECOLOGICAL INFORMATION			
LC50 NA			
EC50 NA			
Section XIII. DISPOSAL CONSIDERATIONS			
Dispose with normal Laboratory Solvent Waste.			
Section XIV. TRANSPORT INFORMATION			
DOT (US)		ΙΑΤΑ	
Not dangerous goods		Not dangerous goods Proper shipping name: Water	
Proper shipping name: Water		Froper 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 adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.





• The ce • Standa • Standa • All Sta • Uncert NIST	1002 022 021 001	192000 -	Appdarce	1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99 Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 μm). Injector B Temp.= 200°C, Detector B Temp.= 220°C. Analyst: Candice Warren.	Compound 2-Onloree Expiration Date: 121324 Recommended Storage: Refrigeration Nominal Concentration (µg/mL): 10000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Compound RM#	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description	Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com
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less otherwise stated. NST (see above). Pry conditions. 2 Uncertainty of NIST Measurement Result,"	10 10 10 10	3	Szan 1639 (27,834 mm): 95318.0 43	10030.2 40.7 110-75-8 =10min.), Temp 2 = 200°C (Time 2=8.75 m	Formulated By: Benson C Formulated By: Pedro L. F Reviewed By: Pedro L. F Expanded SDS Info Actual Uncertainty (Solvent Safety Inf Conc(ug/mL) (++) (ug/mL) CAS# 05HA P	S.	al CRM
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CERTIFIED REFERENCE MATERIAL

Gravimetric Certificate



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. :	555582	_ Lot No.:	A0173020	
Description :	Custom 8260A/B Surrogate	Mix		
	Custom 8260A/B Surrogate 1mL/ampul	Mix 25,000µg/mL, P&T Me	ethanol,	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	June 30, 2024	Storage:	10°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Component #	. Compoun	d	Grav. C (weight/v	NEW CONTRACTOR OF A STATE		Expanded U (95% C.L.; K		and a constant
1	1,2-Dichloroethane-d4 CAS # 17060-07-0 Purity 99%	(Lot PR-29377)	25,060.0		+/- +/- +/-	231.9100 1,416.6261 1,449.2417	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	1-Bromo-4-fluorobenzene (BFB) CAS # 460-00-4 Purity 99%	(Lot 20401KO)	25,188.0		+/- +/- +/-	233.0945 1,423.8618 1,456.6441	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	Dibromofluoromethane CAS # 1868-53-7 Purity 99%	(Lot 012021)	25,212.0		+/- +/- +/-	233.3166 1,425.2185 1,458.0320	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	Toluene-d8 CAS # 2037-26-5 Purity 99%	(Lot PR-31750)	25,104.0		+/- +/- +/-	232.3171 1,419.1134 1,451.7863	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

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

Lane Kibe - Mix Technician

Date Mixed: 03-Jun-2021

Balance: B251644995

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.





Safety Data Sheet Revision Date: 05/24/21

www.restek.com

555582 / Custom 8260A/B Surrogate Mix

Restek Corporation

110 Benner Circle Bellefonte, Pa. 16823

814-353-1300 814-353-1309

www.restek.com

For Laboratory use only

7

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name: Company: Address:

Phone#: Fax#: Emergency#:

Email: Revision Number: Intended use:

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:





800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal	Danger
Word: GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/ IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.

Storage:	Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)
Repeated Exposure Target Organs:	No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
P&T Methanol	67-56-1	200-659-6	90
1-Bromo-4-fluorobenzene (BFB)	460-00-4	207-300-2	2.5
1,2-dichloroethane-d4	17060-07-0		2.5
dibromofluoromethane	1868-53-7		2.5
toluene-d8	2037-26-5	218-009-5	2.5

4. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and
Fire and/or Explosion Hazards:	keep exposed material from being damaged by fire. Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.
Fire Fighting Methods and Protection:	Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide
6. ACCIDENTAL RELEASE MEASURES	
Personal Precautions and Equipment:	Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.
Methods for Clean-up:	Prevent the spread of any spill to minimize harm to human health and the

environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

7. HANDLING AND S					and the second
Handling Technical Measures and Precautions: Storage Technical Measures and Conditions:			Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition		
				p away norn sources of	igniuon
8. EXPOSURE CONT	ROLS / PERS	SONAL PROT	ECTION		
United States:					
Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
P&T Methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA
1-Bromo-4- fluorobenzene (BFB)	460-00-4	Not established	None Known	Not established	No data available
1,2-dichloroethane- d4	17060-07-0	Not established	None Known	Not established	No data available
dibromofluoromethan e	1868-53-7	Not established	None Known	Not established	No data available
toluene-d8	2037-26-5	Not established	None Known	Not established	No data available
Personal Protection:					
Engineering Measure	es:				led when generating excessive levels of
Respiratory Protection:			vapours from handling or thermal processing. Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.		
Eye Protection: W			Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.		
Skin Protection: W			Wear protective regular intervals	gloves. Inspect gloves . Clean protective equip	for chemical break-through and replace at oment regularly. Wash hands and other er before eating, drinking, and when

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	151.5 °C Boiling Point (at 1013.25 hPa) 64.7 °C at 760
n na han na han na 🗩 san ananan na han na taon	mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	50
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
5	

Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	90
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:

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Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

11. TOXICOLOGICAL IN	FORMATION	
Routes of Entry:		Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentia	Ily Affected By Exposure	
Chemical Interactions	That Change Toxicity:	Tract, Respiratory Tract None Known
Immediate (Acute) Healt	th Effects by Route of Ex	posure:
Inhalation Irritation:		spiratory irritation, dizziness, weakness, fatigue, nausea
Inhalation Toxicity:	central nervous system	temic damage (see "Target Organs)Methanol can cause depression and overexposure can cause damage to the isual impairment or blindness.
Skin Contact:		n irritation, defatting, and dermatitis. Not likely to cause
Eye Contact:		tation, tearing and reddening, but not likely to issue.
Ingestion Irritation:	Irritating to mouth, throat	t, and stomach. Can cause abdominal discomfort, arrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:		cause target organ failure and/or death.May be fatal if
Long-Term (Chronic) He	alth Effects:	
Carcinogenicity:	1	No data.
Reproductive and Deve	lopmental loxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:		Upon prolonged and/or repeated exposure, can cause
		moderate respiratory irritation, dizziness, weakness, fatigue,
		nausea and headache.Harmful! Can cause systemic
		damage upon prolonged and/or repeated exposure (see
Skin Contact:		"Target Organs)
Skill Collact.		Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not
		likely to cause permanent damage.
Ingestion:		Toxic if swallowed. May cause target organ failure
		and/or death.
Component Toxicologica	al Data:	
Chemical Name	CAS No.	LD50/LC50
Benzene, 1-bromo-4-fluor	ro- 460-00-4	Inhalation LC50 Rat 18 g/m3 4 h; Oral LD50 Rat
		2700 mg/kg
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h
Component Carcinogeni OSHA:	c Data:	
Chemical Name No data available	CAS No.	
ACGIH: Chemical Name	CAS No.	
No data available	040 110.	
NIOSH:		
Chemical Name No data available	CAS No.	
555582 / Custom 8260A/B \$	Surrogate Mix	Page 4 of 6

NTP: Chemical Name No data available	CAS No.						
IARC: Chemical Name	CAS No.		Group No.				
12. ECOLOGICAL INFORMAT	TION						
Overview: Mobility: Persistence: Bioaccumulation: Degradability: Ecological Toxicity Data:		to plants and/or w No data No data No data	No data No data Biodegrades slowly.				
13. DISPOSAL CONSIDERAT	IONS			K. F. C.			
Waste Description of Spent Product: Disposal Methods: Waste Disposal of Packaging:		spent or discarded render the mixture waste determinati Dispose of by inci or Provincial regul Comply with all Lo	Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures. Dispose of by incineration following Federal, State, Local, or Provincial regulations. Comply with all Local, State, Federal, and Provincial Environmental Regulations.				
14. TRANSPORTATION INFO	RMATION		-				
United States: DOT Proper Shipping Name: UN Number: Hazard Class: Packing Group:		Flammable liquids UN1993 3 II	s, n.o.s. (Methanol)	~			
International: IATA Proper Shipping Name: UN Number: Hazard Class: Packing Group:		Flammable liquids UN1993 3 II	s, n.o.s. (Methanol)				
Marine Pollutant: No							
Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant				
No data available]			

15. REGULATORY INFORMATION

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United States:						
Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA	
P&T Methanol	67-56-1	Х	Х	-	Х	
1-Bromo-4-	460-00-4	-		-	Х	
fluorobenzene (BFB)						
1,2-dichloroethane-d4	17060-07-0	-	-	-	-	
dibromofluoromethane	1868-53-7	-	-	-	-	
toluene-d8	2037-26-5	-	-	-	-	
The following chemic	als are listed or	n CA Prop 65:				
Chemical Name		CAS #	Regulation			
Methanol		67-56-1	Prop 65 Devolop Tox			

State Right To Know	Listing:				
Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California

P&T Methanol	67-56-1	X	X	X	X
1-Bromo-4-	460-00-4	-	-	-	-
fluorobenzene (BFB)					
1,2-dichloroethane-d4	17060-07-0	-	-	-	-
dibromofluoromethane	1868-53-7	-	-	-	-
toluene-d8	2037-26-5	-	-	-	-

16. OTHER INFORMATION

Prior Version Date: Other Information:	07/20/18 Any changes to the SDS compared to previous versions are marked by a vertical
	line in front of the concerned paragraph.
References:	No data available
Disclaimer:	Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.



CERTIFIED REFERENCE MATERIAL

Gravimetric Certificate



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. :	555582 Lot No.: <u>A0173020</u>			
Description :	Custom 8260A/B Surrogate	Mix		
	Custom 8260A/B Surrogate 1mL/ampul	Mix 25,000µg/mL, P&T Me	ethanol,	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	June 30, 2024	Storage:	10°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Component #	. Compoun	d	Grav. C (weight/v	NAME OF TAXABLE PARTY AND ADDRESS OF TAXABLE PARTY.		Expanded U (95% C.L.; K		and a constant
1	1,2-Dichloroethane-d4 CAS # 17060-07-0 Purity 99%	(Lot PR-29377)	25,060.0		+/- +/- +/-	231.9100 1,416.6261 1,449.2417	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	1-Bromo-4-fluorobenzene (BFB) CAS # 460-00-4 Purity 99%	(Lot 20401KO)	25,188.0		+/- +/- +/-	233.0945 1,423.8618 1,456.6441	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	Dibromofluoromethane CAS # 1868-53-7 Purity 99%	(Lot 012021)	25,212.0		+/- +/- +/-	233.3166 1,425.2185 1,458.0320	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	Toluene-d8 CAS # 2037-26-5 Purity 99%	(Lot PR-31750)	25,104.0		+/- +/- +/-	232.3171 1,419.1134 1,451.7863	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

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

Lane Kibe - Mix Technician

Date Mixed: 03-Jun-2021

Balance: B251644995

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.





Safety Data Sheet Revision Date: 05/24/21

www.restek.com

555582 / Custom 8260A/B Surrogate Mix

Restek Corporation

110 Benner Circle Bellefonte, Pa. 16823

814-353-1300 814-353-1309

www.restek.com

For Laboratory use only

7

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name: Company: Address:

Phone#: Fax#: Emergency#:

Email: Revision Number: Intended use:

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:





800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/ IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.

Storage:	Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)
Repeated Exposure Target Organs:	No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
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1-Bromo-4-fluorobenzene (BFB)	460-00-4	207-300-2	2.5
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dibromofluoromethane	1868-53-7		2.5
toluene-d8	2037-26-5	218-009-5	2.5

4. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and
Fire and/or Explosion Hazards:	keep exposed material from being damaged by fire. Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.
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Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide
6. ACCIDENTAL RELEASE MEASURES	
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Methods for Clean-up:	Prevent the spread of any spill to minimize harm to human health and the

environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

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Handling Technical Measures and Precautions: Storage Technical Measures and Conditions:			Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition		
				p away norn sources of	igniuon
8. EXPOSURE CONT	ROLS / PERS	SONAL PROT	ECTION		
United States:					
Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
P&T Methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA
1-Bromo-4- fluorobenzene (BFB)	460-00-4	Not established	None Known	Not established	No data available
1,2-dichloroethane- d4	17060-07-0	Not established	None Known	Not established	No data available
dibromofluoromethan e	1868-53-7	Not established	None Known	Not established	No data available
toluene-d8	2037-26-5	Not established	None Known	Not established	No data available
Personal Protection:					
Engineering Measure	es:			entilation is recommend indling or thermal proce	led when generating excessive levels of
Respiratory Protection:			Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.		
Eye Protection:			Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.		
Skin Protection:			Wear protective regular intervals	gloves. Inspect gloves . Clean protective equip	for chemical break-through and replace at oment regularly. Wash hands and other er before eating, drinking, and when

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	151.5 °C Boiling Point (at 1013.25 hPa) 64.7 °C at 760
	mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	50
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
5	

Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	90
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:

.

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

11. TOXICOLOGICAL IN	FORMATION				
Routes of Entry:		Inhalation, Skin Contact, Eye Contact, Ingestion			
Target Organs Potentia	Ily Affected By Exposure				
Chemical Interactions	That Change Toxicity:	Tract, Respiratory Tract None Known			
Immediate (Acute) Healt	th Effects by Route of Ex	posure:			
Inhalation Irritation:		spiratory irritation, dizziness, weakness, fatigue, nausea			
Inhalation Toxicity:	central nervous system	emic damage (see "Target Organs)Methanol can cause lepression and overexposure can cause damage to the			
Skin Contact:		visual impairment or blindness. in irritation, defatting, and dermatitis. Not likely to cause			
Eye Contact:		tation, tearing and reddening, but not likely to issue.			
Ingestion Irritation:	Irritating to mouth, throat	t, and stomach. Can cause abdominal discomfort, arrhea.Highly toxic and may be fatal if swallowed.			
Ingestion Toxicity:		cause target organ failure and/or death.May be fatal if			
Long-Term (Chronic) He	alth Effects:				
Carcinogenicity:	1	No data.			
Reproductive and Deve	lopmental loxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.			
Inhalation:		Upon prolonged and/or repeated exposure, can cause			
		moderate respiratory irritation, dizziness, weakness, fatigue,			
		nausea and headache.Harmful! Can cause systemic			
		damage upon prolonged and/or repeated exposure (see			
Skin Contact:		"Target Organs)			
Skill Collact.		Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not			
		likely to cause permanent damage.			
Ingestion:		Toxic if swallowed. May cause target organ failure			
		and/or death.			
Component Toxicologica	al Data:				
Chemical Name	CAS No.	LD50/LC50			
Benzene, 1-bromo-4-fluor	ro- 460-00-4	Inhalation LC50 Rat 18 g/m3 4 h; Oral LD50 Rat			
		2700 mg/kg			
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h			
Component Carcinogeni OSHA:	c Data:				
Chemical Name No data available	CAS No.				
ACGIH: Chemical Name	CAS No.				
No data available	040 110.				
NIOSH:					
Chemical Name No data available	CAS No.				
555582 / Custom 8260A/B \$	Surrogate Mix	Page 4 of 6			

NTP: Chemical Name No data available	CAS No.					
IARC: Chemical Name	CAS No.		Group No.			
12. ECOLOGICAL INFORMAT	TION					
Overview: Mobility: Persistence: Bioaccumulation: Degradability: Ecological Toxicity Data:		to plants and/or w No data No data No data	No data No data Biodegrades slowly.			
13. DISPOSAL CONSIDERAT	IONS			K. F. C.		
Waste Description of Spent Product: Disposal Methods: Waste Disposal of Packaging:		spent or discarded render the mixture waste determinati Dispose of by inci or Provincial regul Comply with all Lo	Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures. Dispose of by incineration following Federal, State, Local, or Provincial regulations. Comply with all Local, State, Federal, and Provincial Environmental Regulations.			
14. TRANSPORTATION INFO	RMATION		-			
United States: DOT Proper Shipping Name: UN Number: Hazard Class: Packing Group:		Flammable liquids UN1993 3 II	s, n.o.s. (Methanol)	~		
International: IATA Proper Shipping Name: UN Number: Hazard Class: Packing Group:		Flammable liquids UN1993 3 II	3			
Marine Pollutant: No						
Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant			
No data available]		

15. REGULATORY INFORMATION

the second se						
United States:						
Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA	
P&T Methanol	67-56-1	Х	Х	-	Х	
1-Bromo-4-	460-00-4	-		-	Х	
fluorobenzene (BFB)						
1,2-dichloroethane-d4	17060-07-0	-	-	-	-	
dibromofluoromethane	1868-53-7	-	-	-	-	
toluene-d8	2037-26-5	-	-	-	-	
The following chemic	als are listed or	n CA Prop 65:				
Chemical Name		CAS #	Regulation			
Methanol		67-56-1	Prop 65 Devolop Tox			

State Right To Know	Listing:				
Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California

P&T Methanol	67-56-1	X	X	X	X
1-Bromo-4-	460-00-4	-	-	-	-
fluorobenzene (BFB)					
1,2-dichloroethane-d4	17060-07-0	-	-	-	-
dibromofluoromethane	1868-53-7	-	-	-	-
toluene-d8	2037-26-5	-	-	-	-

16. OTHER INFORMATION

Prior Version Date: Other Information:	07/20/18 Any changes to the SDS compared to previous versions are marked by a vertical
	line in front of the concerned paragraph.
References:	No data available
Disclaimer:	Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.



CERTIFIED REFERENCE MATERIAL

Gravimetric Certificate



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. :	555581	Lot No.:	A0173600	
Description :	Custom 8260 Internal Stand	ard Mix		
	Custom 8260 Internal Standa 1mL/ampul	ard Mix 25,000µg/mL, P&`	۲ Methanol,	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	June 30, 2024	Storage:	10°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Componen #	t	Compound	Grav. Conc. (weight/volume)		Expanded U (95% C.L.; K	and the second sec	
1	1,4-Dichlorobenzene-d CAS# 3855-82-1 Purity 99%	4 (Lot PR-30447)	25,040.0 μg/mL	+/- +/- +/-	231.7249 1,415.4955 1,448.0851	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	1,4-Difluorobenzene CAS # 540-36-3 Purity 99%	(Lot MKBN8571V)	25,216.0 μg/mL	+/- +/- +/-	233.3536 1,425.4447 1,458.2633	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	Chlorobenzene-d5 CAS# 3114-55-4 Purity 99%	(Lot PR-29571)	25,120.0 μg/mL	+/- +/- +/-	232.4652 1,420.0178 1,452.7116	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	Pentafluorobenzene CAS # 363-72-4 Purity 99%	(Lot MKCK2250)	25,092.0 μg/mL	+/- +/- +/-	232.2061 1,418.4350 1,451.0923	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

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

Malher Workman - Operations Technician I

Date Mixed: 18-Jun-2021

Balance: 1128360905

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.



Safety Data Sheet Revision Date: 05/24/21

www.restek.com

555581 / Custom 8260 Internal Standard Mix

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name: Company: Address:

Phone#: Fax#: Emergency#:

Email: Revision Number: Intended use:

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:





800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)

Restek Corporation

110 Benner Circle Bellefonte, Pa. 16823

814-353-1300 814-353-1309

www.restek.com

For Laboratory use only

8

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/ IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.

Storage:	Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs: Repeated Exposure Target Organs:	Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given) No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
P&T Methanol	67-56-1	200-659-6	90
1,4-difluorobenzene	540-36-3	208-742-9	2.5
pentafluorobenzene	363-72-4	206-658-7	2.5
1,4-dichlorobenzene-d4	3855-82-1		2.5
chlorobenzene-d5	3114-55-4	221-482-0	2.5

4. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire. Use alcohol resistant foam, carbon dioxide, dry chemical, or water spray when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the fire. Do not direct a water stream directly into the hot burning liquid.
Fire and/or Explosion Hazards:	Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.
Fire Fighting Methods and Protection:	Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide
6. ACCIDENTAL RELEASE MEASURES	
Personal Precautions and Equipment:	Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the

Methods for Clean-up:	area responding to the spill. Never exceed any occupational exposure limits. Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.
7. HANDLING AND STORAGE	

Handling Technical Measures and Precautions:	Toxic or severely irritating material. Avoid contacting and avoid
	breathing the material. Use only in a well ventilated area. Use
	spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from
	incompatible materials and conditions. Keep container(s)
	closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:							
Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit		
P&T Methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA		
1,4-difluorobenzene	540-36-3	Not established	None Known	Not established	No data available		
pentafluorobenzene	363-72-4	Not established	None Known	Not established	No data available		
1,4-dichlorobenzene- d4	3855-82-1	Not established	None Known	Not established	No data available		
chlorobenzene-d5	3114-55-4	Not established	None Known	Not established	No data available		
Personal Protection:							
Engineering Measure	es:		Local exhaust ve	entilation is recommended	when generating excessive levels of		
Respiratory Protection	on:		vapours from handling or thermal processing. Respiratory protection may be required to avoid overexposure when handli product. General or local exhaust ventilation is the preferred means of prote Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section provide respiratory protection.				
Eye Protection:			Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.				
			Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work				

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	36
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Odor Threshold: Solubility: Partition Coefficient: n- VOC % by weight: Molecular Weight:	Mc	data available oderate; 50-99% data available .04	
10. STABILITY AND REA	ACTIVITY		
Stability: Conditions to Avoid: Materials to Avoid / Che Hazardous Decomposit		Stable under normal conditions. None known. Strong oxidizing agents Carbon dioxide Carbon monoxide	
11. TOXICOLOGICAL IN	FORMATION		
Routes of Entry: Target Organs Potentia	lly Affected By Exposure	Inhalation, Skin Contact, Eye Contact, Ingestion E: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract	
Chemical Interactions T	That Change Toxicity:	None Known	
Immediate (Acute) Healt Inhalation Irritation:	and headache.	piratory irritation, dizziness, weakness, fatigue, nausea	
Inhalation Toxicity:	central nervous system of	emic damage (see "Target Organs)Methanol can cause depression and overexposure can cause damage to the isual impairment or blindness.	
Skin Contact:	Can cause moderate ski	n irritation, defatting, and dermatitis. Not likely to cause	
Eye Contact:	permanent damage. Can cause moderate irrit permanently injure eye ti	tation, tearing and reddening, but not likely to issue.	
Ingestion Irritation:		t, and stomach. Can cause abdominal discomfort, arrhea.Highly toxic and may be fatal if swallowed.	
Ingestion Toxicity:		cause target organ failure and/or death.May be fatal if	
Long-Term (Chronic) He Carcinogenicity: Reproductive and Deve Inhalation: Skin Contact: Skin Absorption: Ingestion: Component Toxicologica	lopmental Toxicity:	No data. No data available to indicate product or any components present at greater than 0.1% may cause birth defects. Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs) Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage. Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage Toxic if swallowed. May cause target organ failure and/or death.	
NIOSH: Chemical Name Benzene, 1,2,3,4,5-penta Methanol	CAS No.	LD50/LC50 Oral LD50 Rat 2 g/kg Inhalation LC50 Rat 22500 ppm 8 h	
Component Carcinogeni OSHA: Chemical Name No data available	c Data: CAS No.		
ACGIH: Chemical Name No data available	CAS No.		

NIOSH: Chemical Name No data available	CAS No.					
NTP: Chemical Name No data available	CAS No.					
IARC: Chemical Name	CAS No.		Group No.			
12. ECOLOGICAL INFORMATION	1					
Overview:		Moderate ecolog	gical hazard. This product	may be dangerous		
Mobility: Persistence: Bioaccumulation: Degradability: Ecological Toxicity Data:		to plants and/or No data No data No data Biodegrades slov No data availabl	wly.			
13. DISPOSAL CONSIDERATION	S			2		
Waste Description of Spent Proc	luct:		ed material is a hazardous ed material with other mat			
Disposal Methods: Waste Disposal of Packaging:		render the mixture hazardous. Perform a hazardous waste determination on mixtures. Dispose of by incineration following Federal, State, Local, or Provincial regulations. Comply with all Local, State, Federal, and Provincial Environmental Regulations.				
14. TRANSPORTATION INFORM	ATION					
United States:						
DOT Proper Shipping Name:			ls, n.o.s. (Methanol,			
UN Number:		Pentafluorobenz UN1993	ene)			
Hazard Class:		3				
Packing Group:		11				
International:						
IATA Proper Shipping Name:		Flammable liquid	ls, n.o.s. (Methanol,			
			Pentafluorobenzene)			
UN Number:		UN1993				
Hazard Class:		3				
Packing Group:		II				
Marine Pollutant: No						
Chemical Name	CAS#	Marine Pollutant	Severe Marine]		
			Pollutant			
No data available						

15. REGULATORY INFORMATION

United States:		and the second sec			
Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
P&T Methanol	67-56-1	Х	Х	-	Х
1,4-difluorobenzene	540-36-3	-	-	-	-
pentafluorobenzene	363-72-4	-	·-	-	Х
1,4-dichlorobenzene-d4	3855-82-1	<u> </u>	-	-	-
chlorobenzene-d5	3114-55-4	-	-	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
P&T Methanol	67-56-1	X	X	X	X
1,4-difluorobenzene	540-36-3	-	-	-	-
pentafluorobenzene	363-72-4	-	-	-	
1,4-dichlorobenzene-d4	3855-82-1	-	-	-	-
chlorobenzene-d5	3114-55-4	-	-	-	-

16. OTHER INFORMATION

Prior Version Date:	12/15/16
Other Information:	Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References:	No data available
Disclaimer:	Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.



CERTIFIED REFERENCE MATERIAL

Gravimetric Certificate



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. :	555581 Lot No.: <u>A0173600</u>						
Description :	Custom 8260 Internal Standard Mix						
	Custom 8260 Internal Standa 1mL/ampul	ard Mix 25,000µg/mL, P&`	۲ Methanol,				
Container Size :	2 mL	Pkg Amt:	> 1 mL				
Expiration Date :	June 30, 2024	Storage:	10°C or colder				
		Ship:	Ambient				

CERTIFIED VALUES

Componen #	t	Compound	Grav. Conc. (weight/volume)		Expanded U (95% C.L.; K	and the second sec	
1	1,4-Dichlorobenzene-d CAS# 3855-82-1 Purity 99%	4 (Lot PR-30447)	25,040.0 μg/mL	+/- +/- +/-	231.7249 1,415.4955 1,448.0851	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	1,4-Difluorobenzene CAS # 540-36-3 Purity 99%	(Lot MKBN8571V)	25,216.0 μg/mL	+/- +/- +/-	233.3536 1,425.4447 1,458.2633	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	Chlorobenzene-d5 CAS# 3114-55-4 Purity 99%	(Lot PR-29571)	25,120.0 μg/mL	+/- +/- +/-	232.4652 1,420.0178 1,452.7116	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	Pentafluorobenzene CAS # 363-72-4 Purity 99%	(Lot MKCK2250)	25,092.0 μg/mL	+/- +/- +/-	232.2061 1,418.4350 1,451.0923	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed

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

Malher Workman - Operations Technician I

Date Mixed: 18-Jun-2021

Balance: 1128360905

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.



Safety Data Sheet Revision Date: 05/24/21

www.restek.com

555581 / Custom 8260 Internal Standard Mix

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name: Company: Address:

Phone#: Fax#: Emergency#:

Email: Revision Number: Intended use:

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:





800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)

Restek Corporation

110 Benner Circle Bellefonte, Pa. 16823

814-353-1300 814-353-1309

www.restek.com

For Laboratory use only

8

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/ IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.

Storage:	Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs: Repeated Exposure Target Organs:	Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given) No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
P&T Methanol	67-56-1	200-659-6	90
1,4-difluorobenzene	540-36-3	208-742-9	2.5
pentafluorobenzene	363-72-4	206-658-7	2.5
1,4-dichlorobenzene-d4	3855-82-1		2.5
chlorobenzene-d5	3114-55-4	221-482-0	2.5

4. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire. Use alcohol resistant foam, carbon dioxide, dry chemical, or water spray when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the fire. Do not direct a water stream directly into the hot burning liquid.
Fire and/or Explosion Hazards:	Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.
Fire Fighting Methods and Protection:	Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide
6. ACCIDENTAL RELEASE MEASURES	
Personal Precautions and Equipment:	Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the

Methods for Clean-up:	area responding to the spill. Never exceed any occupational exposure limits. Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.
7. HANDLING AND STORAGE	

Handling Technical Measures and Precautions:	Toxic or severely irritating material. Avoid contacting and avoid
	breathing the material. Use only in a well ventilated area. Use
	spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from
	incompatible materials and conditions. Keep container(s)
	closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:						
Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit	
P&T Methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA	
1,4-difluorobenzene	540-36-3	Not established	None Known	Not established	No data available	
pentafluorobenzene	363-72-4	Not established	None Known	Not established	No data available	
1,4-dichlorobenzene- d4	3855-82-1	Not established	None Known	Not established	No data available	
chlorobenzene-d5	3114-55-4	Not established	None Known	Not established	No data available	
Personal Protection:						
Engineering Measure	es:		Local exhaust ve	entilation is recommended	when generating excessive levels of	
Respiratory Protection:			vapours from handling or thermal processing. Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.			
Eye Protection:			Wear chemically		vith side shields when handling this	
Skin Protection:		Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work				

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	36
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Odor Threshold: Solubility: Partition Coefficient: n- VOC % by weight: Molecular Weight:	Mc	data available oderate; 50-99% data available .04			
10. STABILITY AND REA	ACTIVITY				
Stability: Conditions to Avoid: Materials to Avoid / Che Hazardous Decomposit		Stable under normal conditions. None known. Strong oxidizing agents Carbon dioxide Carbon monoxide			
11. TOXICOLOGICAL IN	FORMATION				
Routes of Entry: Target Organs Potentia	lly Affected By Exposure	Inhalation, Skin Contact, Eye Contact, Ingestion E: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract			
Chemical Interactions T	That Change Toxicity:	None Known			
Immediate (Acute) Healt Inhalation Irritation:	and headache.	piratory irritation, dizziness, weakness, fatigue, nausea			
Inhalation Toxicity:	central nervous system of	emic damage (see "Target Organs)Methanol can cause depression and overexposure can cause damage to the isual impairment or blindness.			
Skin Contact:	Can cause moderate ski	n irritation, defatting, and dermatitis. Not likely to cause			
Eye Contact:	permanent damage. Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.				
Ingestion Irritation:		Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.			
Ingestion Toxicity:		cause target organ failure and/or death.May be fatal if			
Long-Term (Chronic) He Carcinogenicity: Reproductive and Deve Inhalation: Skin Contact: Skin Absorption: Ingestion: Component Toxicologica	lopmental Toxicity:	No data. No data available to indicate product or any components present at greater than 0.1% may cause birth defects. Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs) Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage. Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage Toxic if swallowed. May cause target organ failure and/or death.			
NIOSH: Chemical Name Benzene, 1,2,3,4,5-penta Methanol	CAS No.	LD50/LC50 Oral LD50 Rat 2 g/kg Inhalation LC50 Rat 22500 ppm 8 h			
Component Carcinogeni OSHA: Chemical Name No data available	c Data: CAS No.				
ACGIH: Chemical Name No data available	CAS No.				

NIOSH: Chemical Name No data available	CAS No.				
NTP: Chemical Name No data available	CAS No.				
IARC: Chemical Name	CAS No.		Group No.		
12. ECOLOGICAL INFORMATION	1				
Overview:		Moderate ecolog	gical hazard. This product	may be dangerous	
Mobility: Persistence: Bioaccumulation: Degradability: Ecological Toxicity Data:		to plants and/or No data No data No data Biodegrades slov No data availabl	wly.		
13. DISPOSAL CONSIDERATION	S			2	
Waste Description of Spent Proc	luct:		ed material is a hazardous ed material with other mat		
Disposal Methods: Waste Disposal of Packaging:		render the mixture hazardous. Perform a hazardous waste determination on mixtures. Dispose of by incineration following Federal, State, Local, or Provincial regulations. Comply with all Local, State, Federal, and Provincial Environmental Regulations.			
14. TRANSPORTATION INFORM	ATION				
United States:					
DOT Proper Shipping Name:			ls, n.o.s. (Methanol,		
UN Number:		Pentafluorobenz UN1993	ene)		
Hazard Class:		3			
Packing Group:		11			
International:					
IATA Proper Shipping Name:		Flammable liquid	Flammable liquids, n.o.s. (Methanol,		
			Pentafluorobenzene)		
UN Number:		UN1993			
Hazard Class:			3		
Packing Group:		II			
Marine Pollutant: No					
Chemical Name	CAS#	Marine Pollutant	Severe Marine]	
			Pollutant		
No data available					

15. REGULATORY INFORMATION

United States:		and the second se			
Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
P&T Methanol	67-56-1	Х	Х	-	Х
1,4-difluorobenzene	540-36-3	-	-	-	-
pentafluorobenzene	363-72-4	-	·-	-	Х
1,4-dichlorobenzene-d4	3855-82-1	<u> </u>	-	-	-
chlorobenzene-d5	3114-55-4	-	-	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
P&T Methanol	67-56-1	X	X	X	X
1,4-difluorobenzene	540-36-3	-	-	-	-
pentafluorobenzene	363-72-4	-	-	-	-
1,4-dichlorobenzene-d4	3855-82-1	-	-	-	-
chlorobenzene-d5	3114-55-4	-	-	-	-

16. OTHER INFORMATION

Prior Version Date:	12/15/16
Other Information:	Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References:	No data available
Disclaimer:	Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.



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. :	<u>30470</u> Lot No.: <u>A0173797</u>				
Description :	tert-Butanol Standard				
	tert-Butanol Std 50,000µg/mL,	P&T Methanol, 1mL/an	npul		
Container Size :	2 mL	Pkg Amt:	> 1 mL		
Expiration Date :	June 30, 2024	Storage:	0°C or colder		
		Ship:	Ambient		

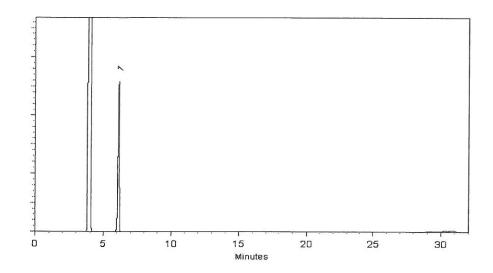
CERTIFIED VALUES

Elution Order	Ca	ompound	Grav. Conc. (weight/volume)			Expanded Uncertainty (95% C.L.; K=2)		
1	tert-Butanol (TBA) CAS # 75-65-0 Purity 99%	(Lot SHBM7694)	50,012.0	μg/mL	+/- +/- +/-	292.8313 1,071.3233 1,102.4365	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.

Michael Maye

Date Mixed:

Balance: 1127510105

Junifu 2 Pollino Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 25-Jun-2021

24-Jun-2021

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

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

Manufacturing Notes:

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

Handling Notes:

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



110 Benner Circle Bellefonte, PA 16823-8812

Tel: (800)356-1688

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



ACCREDITED ISOREC 17025 Accredited Testing Laboratory Certificate #322202

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. :	<u>30225</u> Lot No.: <u>A0176219</u>					
Description :	Bromochloromethane Standard					
	Bromochloromethane 2000µg/m	L, P&T Methanol, 1mL	/ampul			
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	September 30, 2026	Storage:	0°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

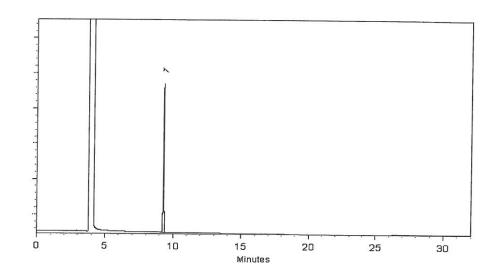
dulah

Elution Order	C		ompound	Grav. (weight/			Expanded ((95% C.L.; I	(-2)	
1	CAS #	promethane 74-97-5 99%	(Lot 00008541)	2,016.0	μg/mL	+/- +/- +/-	11.9744 113.0617 115.7059	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Meth	anol							

CAS # 67-56-1 Purity 99% Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:



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



Date Mixed:

08-Sep-2021 Balanc

Balance: 1128353505

Marlina Cowan - Operations Tech I

Date Passed: 10-Sep-2021

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%.

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

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

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



110 Benner Circle Bellefonte, PA 16823-8812

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



ACCREDITED ISOREC 17025 Accredited Testing Laboratory Certificate #322202

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. :	<u>30225</u> Lot No.: <u>A0176219</u>					
Description :	Bromochloromethane Standard					
	Bromochloromethane 2000µg/m	L, P&T Methanol, 1mL	/ampul			
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	September 30, 2026	Storage:	0°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

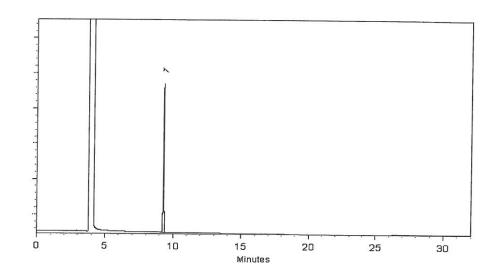
dulah

Elution Order	C		ompound	Grav. (weight/			Expanded ((95% C.L.; I	(-2)	
1	CAS #	promethane 74-97-5 99%	(Lot 00008541)	2,016.0	μg/mL	+/- +/- +/-	11.9744 113.0617 115.7059	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Meth	anol							

CAS # 67-56-1 Purity 99% Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:



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



Date Mixed:

08-Sep-2021 Balanc

Balance: 1128353505

Marlina Cowan - Operations Tech I

Date Passed: 10-Sep-2021

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 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.



110 Benner Circle Bellefonte, PA 16823-8812

Tel: (800)356-1688

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



ACCREDITED ISOREC 17025 Accredited Testing Laboratory Certificate #322202

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. :	<u>30225</u> Lot No.: <u>A0176219</u>					
Description :	Bromochloromethane Standard					
	Bromochloromethane 2000µg/m	L, P&T Methanol, 1mL	/ampul			
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	September 30, 2026	Storage:	0°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

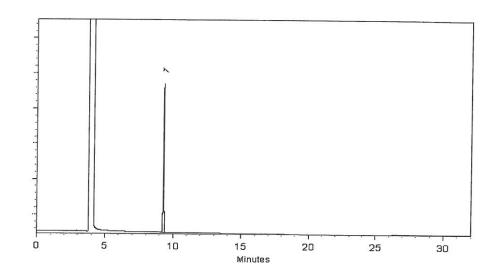
dulah

Elution Order	C		ompound	Grav. (weight/			Expanded ((95% C.L.; I	(-2)	
1	CAS #	promethane 74-97-5 99%	(Lot 00008541)	2,016.0	μg/mL	+/- +/- +/-	11.9744 113.0617 115.7059	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Meth	anol							

CAS # 67-56-1 Purity 99% Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:



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



Date Mixed:

08-Sep-2021 Balanc

Balance: 1128353505

Marlina Cowan - Operations Tech I

Date Passed: 10-Sep-2021

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 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.



110 Benner Circle Bellefonte, PA 16823-8812

Tel: (800)356-1688

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



ACCREDITED ISOREC 17025 Accredited Testing Laboratory Certificate #322202

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. :	<u>30225</u> Lot No.: <u>A0176219</u>					
Description :	Bromochloromethane Standard					
	Bromochloromethane 2000µg/m	L, P&T Methanol, 1mL	/ampul			
Container Size :	2 mL	Pkg Amt:	> 1 mL			
Expiration Date :	September 30, 2026	Storage:	0°C or colder			
		Ship:	Ambient			

CERTIFIED VALUES

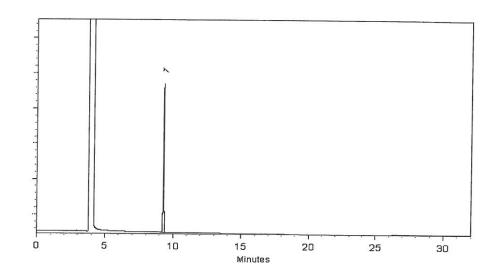
dulah

Elution Order	C		ompound	Grav. (weight/			Expanded ((95% C.L.; I	(-2)	
1	CAS #	promethane 74-97-5 99%	(Lot 00008541)	2,016.0	μg/mL	+/- +/- +/-	11.9744 113.0617 115.7059	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Meth	anol							

CAS # 67-56-1 Purity 99% Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:



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



Date Mixed:

08-Sep-2021 Balanc

Balance: 1128353505

Marlina Cowan - Operations Tech I

Date Passed: 10-Sep-2021

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 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	
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0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days	

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

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

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



110 Benner Circle Bellefonte, PA 16823-8812

Tel: (800)356-1688

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



ACCREDITED ISOREC 17025 Accredited Testing Laboratory Certificate #322202

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. :	30225	Lot No.:	A0176219	
Description :	Bromochloromethane Standard			
	Bromochloromethane 2000µg/m	L, P&T Methanol, 1mL	/ampul	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	September 30, 2026	Storage:	0°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

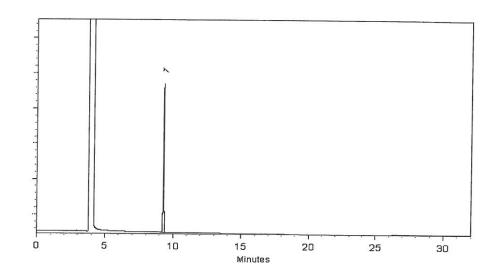
dulah

Elution Order	Compound		Grav. Conc. (weight/volume)				xpanded Uncertainty 95% C.L.; K=2)		
1	CAS #	promethane 74-97-5 99%	(Lot 00008541)	2,016.0	μg/mL	+/- +/- +/-	11.9744 113.0617 115.7059	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Meth	anol							

CAS # 67-56-1 Purity 99% Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:



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



Date Mixed:

08-Sep-2021 Balanc

Balance: 1128353505

Marlina Cowan - Operations Tech I

Date Passed: 10-Sep-2021

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 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.



CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



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

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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.:	A0180020	
Description :	502.2 Calibration Mix #1			
	502.2 Calibration Mix #1 2,000	µg/mL, P&T Methanol, 1	mL/ampul	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	August 31, 2028	Storage:	0°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Elution Order	Compound Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)
1	Dichlorodifluoromethane (CFC-12) CAS # 75-71-8 (Lot 00012554) Purity 99%	2,000.3 μg/mL	+/- 15.3069 μg/mL Gravimetric +/- 112.5944 μg/mL Unstressed +/- 115.2086 μg/mL Stressed
2	Chloromethane (methyl chloride)CAS #74-87-3Purity99%	2,000.2 μg/mL	+/- 16.0159 μg/mL Gravimetric +/- 112.6902 μg/mL Unstressed +/- 115.3022 μg/mL Stressed
3	Vinyl chloride CAS # 75-01-4 (Lot 00015559) Purity 99%	2,000.2 μg/mL	+/- 15.3606 μg/mL Gravimetric +/- 112.5946 μg/mL Unstressed +/- 115.2084 μg/mL Stressed
4	Bromomethane (methyl bromide) CAS # 74-83-9 (Lot 101604) Purity 99%	2,000.0 μg/mL	+/- 16.4530 μg/mL Gravimetric +/- 112.7388 μg/mL Unstressed +/- 115.3490 μg/mL Stressed
5	Chloroethane (ethyl chloride) CAS # 75-00-3 (Lot 107-401039114-1) Purity 99%	2,000.0 μg/mL)	+/- 14.9791 μg/mL Gravimetric +/- 112.5343 μg/mL Unstressed +/- 115.1491 μg/mL Stressed
6	Trichlorofluoromethane (CFC-11) CAS # 75-69-4 (Lot MKCL8411) Purity 99%	2,000.4 μg/mL	+/- 16.7677 μg/mL Gravimetric +/- 112.8062 μg/mL Unstressed +/- 115.4158 μg/mL Stressed

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



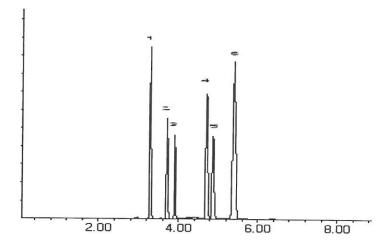
Carrier Gas: helium-constant flow 2.0 mL/min.

Temp. Program: 40°C (hold 6 min.) to 100°C @ 6°C/min.

Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type: MSD



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.

Cathleen Soltis Cathleen Soltis - Mix Technician

Date Mixed: 27-Dec-2021 Balance: B707717271

(u)Clara Windle - Operations Technician I

Date Passed: 06-Jan-2022

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

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.

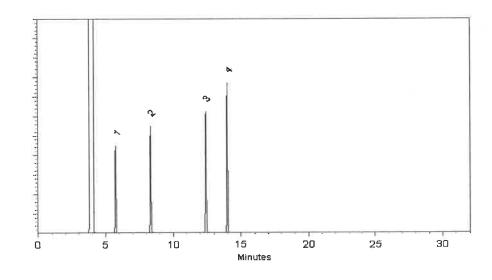
Catalog No. :	30006	Lot No.:	A0186767	
Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000 1mL/ampul)µg/mL, P&T Methanol/W	/ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	September 30, 2025	Storage:	0°C or colder	
_		Ship:	Ambient	

CERTIFIED VALUES

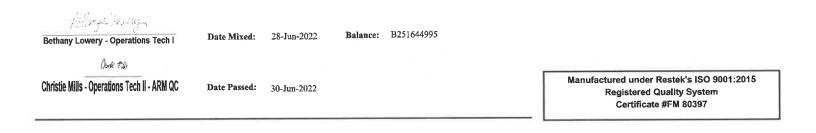
Elution Order		Compound		Grav. Conc. (weight/volumē)			Expanded (95% C.L.;	Uncertainty K=2)		
1	Acetone CAS # Purity	67-64-1 99%	(Lot MKCQ7914)	5,046.8	µg/mL	+/- +/- +/-	29.3427 304.4978 305.2207	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed	
2	2-Butano CAS # Purity	one (MEK) 78-93-3 99%	(Lot SHBN2844)	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.



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

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

www.restek.com

Certificate of Composition



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>555408-FL</u>	Lot No.:	A0187418
Description :	Custom Vinyl Acetate Standard		
	Custom Vinyl Acetate Standard 8,000)µg/mL, P&T Meth	nanol, 1mL/ampul
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	January 31, 2024	Storage:	-20°C or colder
Handling:	This product is photosensitive.	Ship:	On Ice

CERTIFIED VALUES

Elution Order	Сотроила		Grav. Conc. (weight/volume)			Expanded Uncertainty (95% C.L.; K=2)			
1	Vinyl ac CAS # Purity	etate 108-05-4 99%	(Lot RD220630)	8,008.0	µg/mL	+/- +/- +/-	46.9954 483.2004 484.3474	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Me	thanol							

Tech Tips;

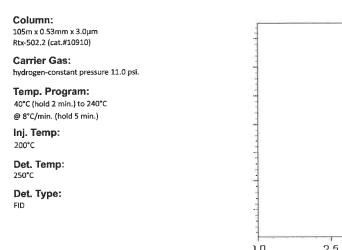
CAS #

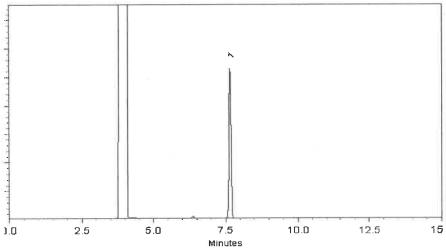
Purity

67-56-1

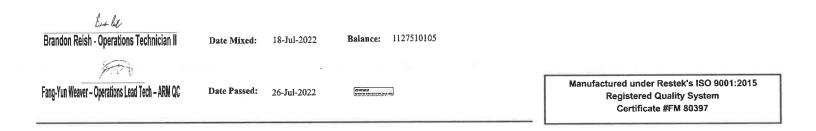
99%

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





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.



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,
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CERTIFIED REFERENCE MATERIAL

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Certificate of Composition



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.: <u>A0187421</u>				
Description :	Custom Vinyl Acetate Standard Custom Vinyl Acetate Standard 8,000µg/mL, P&T Methanol, 1mL/ampul				
Container Size :	<u>2 mL</u>	Pkg Amt:	> 1 mŁ		
Expiration Date :	January 31, 2024	Storage:	-20°C or colder		
Handling:	This product is photosensitive.	Ship:	On Ice		

CERTIFIED VALUES

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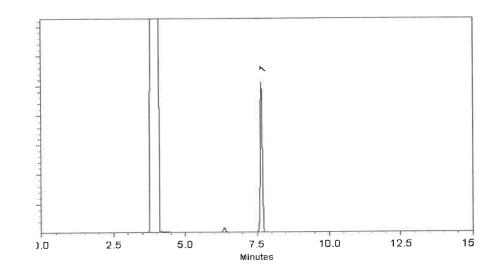
Elution Order		Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99%	(Lot RD220630)	8,078.0 µg/mL	+/- 47.4062 μg/mL Gravimetric +/- 487.4241 μg/mL Unstressed +/- 488.5812 μg/mL Stressed
Solvent:	P&T Methanol CAS # 67-56-1			

Purity 99%

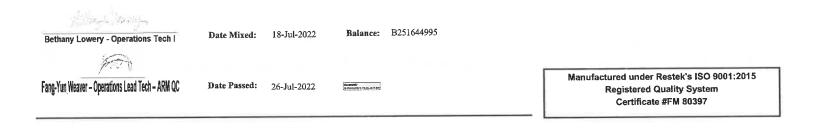
Tech Tips:

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

Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type: 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.



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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
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which includes complete instructions.

CERTIFIED REFERENCE MATERIAL

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www.restek.com



Certificate of Composition



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.:	A0187421
Description :	Custom Vinyl Acetate Standard		
	Custom Vinyl Acetate Standard 8,00	0µg/mL, P&T Meth	nanol, 1mL/ampul
Container Size :	<u>2 mL</u>	Pkg Amt:	> 1 mL
Expiration Date :	January 31, 2024	Storage:	-20°C or colder
Handling:	This product is photosensitive.	Ship:	On Ice

CERTIFIED VALUES

20

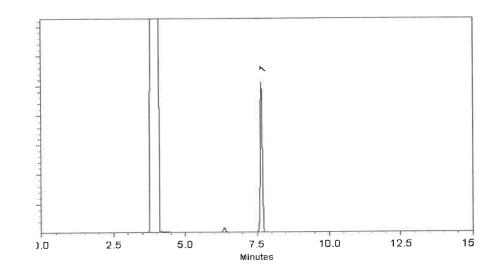
Elution Order		Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99%	(Lot RD220630)	8,078.0 µg/mL	+/- 47.4062 μg/mL Gravimetric +/- 487.4241 μg/mL Unstressed +/- 488.5812 μg/mL Stressed
Solvent:	P&T Methanol CAS # 67-56-1			

Purity 99%

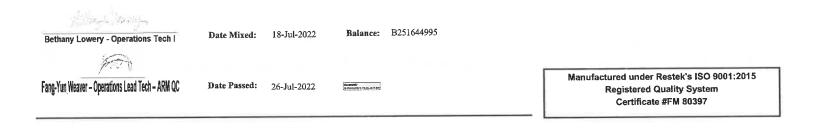
Tech Tips:

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

Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp: 250°C Det. Type: 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.



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

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

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- 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:

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ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
which includes complete instructions.



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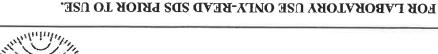
CERTIFIED REFERENCE MATERIAL



SESSTEX

Fax: (814)353-1309 www.restek.com

Bellefonte, PA 16823-8812 Tel: (800)356-1688



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

: 9 sirer Siz e : Expiration Date :	2 mL April 30, 2029	Pkg Amt: Storage: qin?	> 1 mL 0°C or colder Ambient
	502.2 Calibration Mix #1 2,000µg/	r, lonsriteM T&9	լոdաe/շա
Description :	502.2 Calibration Mix #1		
Catalog No. :	30042	Lot No.:	6188810A

CERTIFIED VALUES

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uive sue szese	ūΩ	Τu	រ/ਡੋਸ រ/ਡੋਸ រ/ਡੋਸ	119:0738 113:4320 13:7338	-/+ -/+ -/+	Jm\zu	1.010,2	(Lot 00012554)	difluoromethane (CFC-12) 75-71-8 99%	Dichloro CAS # Purity	
esse outrin outrin	an U U	Ju Ju	1/อีก 1/อิก 1/อิก 1/อิก	14.0370 113.4702 116.1132	-/+ -/+ -/+	ๅณ/ธิท่	1.010,2	(Lot SHBK6571)	וכלוזמוכ (תכלוצין כהוסרולפ) 74-87-3 99%	Purity CAS # Chlorom	
nivi stres sace	uΩ	Ju	1/និ។ 1/និ។ 1/និ។	113.4560 113.4768 113.4769	-/+ -/+ -/+		2,018.0	(Lot 00015559)	əbirol 75-10-27 %99	Իսւնչ CAS # Մոչվ շհ	
niv: stres ssse	πŊ	Τu	u/ਡੋਸ u/ਡੋਸ u/ਡੋਸ	113.2023 113.2023	-/+ -/+ -/+	J m/ยูม	0.710,2	(Lot 101604)	ethane (methyl bromide) 74–83–9 99%	Bromom Bromom	
vin səttes		Ju	u/อิท u/อิท์ u/อิท์	14.2283 113.4891 116.1314	-/+ -/+ -/+	ിണ\ <u>ള</u> µ	0.010,2	(I-411050104-701 10.1)	hane (ethyl chloride) 75-00-3 99%	Purity CAS #	
miv tres bəsə	αŪ	Jt	u/ธิท่ u/ธิท่ u/ธิท่	116.3969 113.7612 16.3342	-/+ -/+ -/+	Jm/g4	8.810,2	(Lot MKCL8411)	rfluoromethane (CFC-11) 75-69-4 99%	Trichloro CAS #	

%66	Purity	
1-95-29	# S¥3	
lonedt	:Jnevio2	

%66 **б**ира

Соlumn: 60m x 0.25m x 1.4µm Rtx-502.2 (сат.#10916)

Carrier Gas: helium-constant flow 2.0 mL/min.

neinm-constant now 2.0 mJ/min

۵°C (hold 6 min.) to 100°C ۵°C (hold 6 min.) to 200°C ۵°C/min.

500.C

Det. Temp: 250°C

Det. Type: Det

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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المانية المحمد لا أنكسم لا أنكسم لا أنكسم المانية المحمد Date Miranda Kline - Operations Technician I Date Passed: 22-Aug-2022 Balance: B251644995 مالية جين المحمد المحمد Date Passed: 25-Aug-2022 Balance: B251644995 مالية - Operations Tech II - ARM GC Date Passed: 25-Aug-2022

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

Expiration Notes:

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$$U_{combined stressed} = k \left| U_{gravimetric}^{z} + U_{homogeneity}^{z} + U_{storage stability}^{z} + U_{storage stability}^{z} + U_{storage stability}^{z} + U_{storage stability}^{z} \right|_{storage stability}$$

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

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Non-Standard Conditions	Standard Conditions	Label Conditions	
≥60°C up to 7 of qu	C∘09 >	25°C Nominal (Room Temperature)	
≥ 40°C up to 7 days	< 40°C	10°C or colder (Retrigerate)	
≥25°C up to 7 days	< 52°C	-20°C or colder (Freezer) -20°C or colder (Freezer)	

- 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>.
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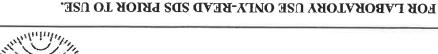
CERTIFIED REFERENCE MATERIAL



SESSTEX

Fax: (814)353-1309 www.restek.com

Bellefonte, PA 16823-8812 Tel: (800)356-1688



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

: 9 sirer Siz e : Expiration Date :	2 mL April 30, 2029	Pkg Amt: Storage: qin?	> 1 mL 0°C or colder Ambient
	502.2 Calibration Mix #1 2,000µg/	r, lonsriteM T&9	լոdաe/շա
Description :	502.2 Calibration Mix #1		
Catalog No. :	30042	Lot No.:	6188810A

CERTIFIED VALUES

		λ11 μr		Expanded I (95% C.L.; ł) .veið Midpisw)		unodulo		Order Örder
uive sue szese	ūΩ	Τu	រ/ਡੋਸ រ/ਡੋਸ រ/ਡੋਸ	119:0738 113:4320 13:7338	-/+ -/+ -/+	Jm\zu	1.010,2	(Lot 00012554)	difluoromethane (CFC-12) 75-71-8 99%	Dichloro CAS # Purity	
esse outrin outrin	an U U	Ju Ju	1/อีก 1/อิก 1/อิก 1/อิก	14.0370 113.4702 116.1132	-/+ -/+ -/+	ๅณ/ธิท่	1.010,2	(Lot SHBK6571)	וכלוזמוכ (תכלוצין כהוסרולפ) 74-87-3 99%	Purity CAS # Chlorom	
nivi stres sace	uΩ	Ju	1/និ។ 1/និ។ 1/និ។	113.4560 113.4768 113.4769	-/+ -/+ -/+		2,018.0	(Lot 00015559)	əbirol 75-10-27 %99	Բուլքչ C∀2 # Նլոչ] շի	
niv: stres ssse	πŊ	Τu	u/ਡੋਸ u/ਡੋਸ u/ਡੋਸ	113.2023 113.2023	-/+ -/+ -/+	J m/ยูม	0.710,2	(Lot 101604)	ethane (methyl bromide) 74–83–9 99%	Bromom Bromom	
vin səttes		Ju	u/อิท u/อิท์ u/อิท์	14.2283 113.4891 116.1314	-/+ -/+ -/+	ിണ\ <u>ള</u> µ	0.010,2	(I-411050104-701 10.1)	hane (ethyl chloride) 75-00-3 99%	Purity CAS #	
miv tres bəsə	αŪ	Jt	u/ธิท่ u/ธิท่ u/ธิท่	116.3969 113.7612 16.3342	-/+ -/+ -/+	Jm/g4	8.810,2	(Lot MKCL8411)	rfluoromethane (CFC-11) 75-69-4 99%	Trichloro CAS #	

%66	Purity	
1-95-29	# S¥3	
lonedt	:Jnevio2	

%66 **б**ира

Соlumn: 60m x 0.25m x 1.4µm Rtx-502.2 (сат.#10916)

Carrier Gas: helium-constant flow 2.0 mL/min.

neinm-constant now 2.0 mJ/min

۵°C (hold 6 min.) to 100°C ۵°C (hold 6 min.) to 200°C ۵°C/min.

500.C

Det. Temp: 250°C

Det. Type: Det

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المانية المحمد لا أنكسم لا أنكسم لا أنكسم المانية المحمد Date Miranda Kline - Operations Technician I Date Passed: 22-Aug-2022 Balance: B251644995 مالية جين المحمد المحمد Date Passed: 25-Aug-2022 Balance: B251644995 مالية - Operations Tech II - ARM GC Date Passed: 25-Aug-2022

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.
- Oncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the
- recommended appreciation 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:

$$U_{combined stressed} = k \left| U_{gravimetric}^{z} + U_{homogeneity}^{z} + U_{storage stability}^{z} + U_{storage stability}^{z} + U_{storage stability}^{z} + U_{storage stability}^{z} \right|_{storage stability}$$

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.

Non-Standard Conditions	Standard Conditions	Label Conditions	
≥60°C up to 7 of qu	C∘09 >	25°C Nominal (Room Temperature)	
≥ 40°C up to 7 days	< 40°C	10°C or colder (Retrigerate)	
≥25°C up to 7 days	< 52°C	-20°C or colder (Freezer) -20°C or colder (Freezer)	

- 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.
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Ranufacturing 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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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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Certificate of Analysis



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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.:	A0190554	
Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000 1mL/ampul	0µg/mL, P&T Methanol/W	/ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	January 31, 2026	Storage:	0°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Elution Order		Compound	⁻Grav. Conc. (weight/volume)		Expanded (95% C.L.;	Uncertainty K=2)	
1	Acetone CAS # 67-64-1 Purity 99%	(Lot 103138L01T)	5,006.0 μg/mL	+/- +/- +/-	29.1053 302.0342 302.7512	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	2-Butanone (MEK) CAS # 78-93-3 Purity 99%	(Lot SHBN2844)	5,002.3 µg/mL	+/- +/- +/-	29.0840 301.8129 302.5295	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
3	4-Methyl-2-pentanor CAS # 108-10-1 Purity 99%	ne (MIBK) (Lot SHBP4724)	5,001.7 µg/mL	+/- +/- +/-	29.0801 301.7727 302.4892	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
4	2-Hexanone CAS # 591-78-6 Purity 99%	(Lot MKCQ6663)	5,000.8 µg/mL	+/- +/- +/-	29.0753 301.7224 302.4388	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
Solvent:	P&T Methanol/Wate	r (90:10)					

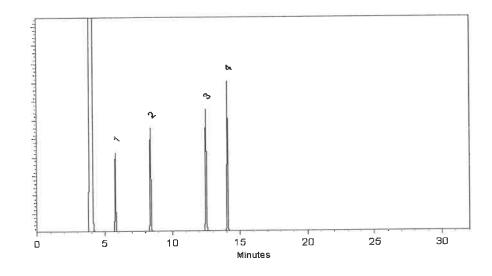
CAS # 67-56-1/7732-18-5

Purity 99%

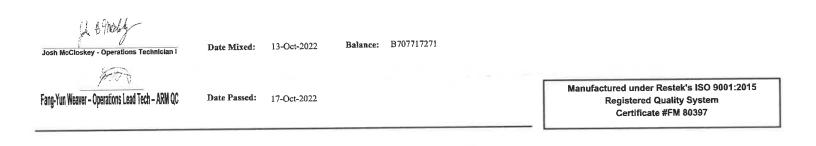
Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) Carrier Gas: hydrogen-constant pressure 11.0 psi. Temp. Program: 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Inj. Temp: 200°C Det. Temp:

Det. Type:

250°C



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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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:

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Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000 1mL/ampul	0µg/mL, P&T Methanol/W	/ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	January 31, 2026	Storage:	0°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Elution Order		Compound	⁻Grav. Conc. (weight/volume)		Expanded (95% C.L.;	Uncertainty K=2)	
1	Acetone CAS # 67-64-1 Purity 99%	(Lot 103138L01T)	5,006.0 μg/mL	+/- +/- +/-	29.1053 302.0342 302.7512	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
2	2-Butanone (MEK) CAS # 78-93-3 Purity 99%	(Lot SHBN2844)	5,002.3 µg/mL	+/- +/- +/-	29.0840 301.8129 302.5295	μg/mL μg/mL μg/mL	Gravimetric Unstressed Stressed
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Solvent:	P&T Methanol/Wate	r (90:10)					

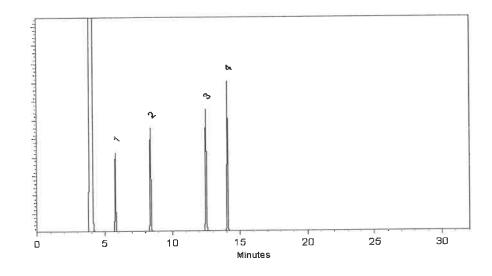
CAS # 67-56-1/7732-18-5

Purity 99%

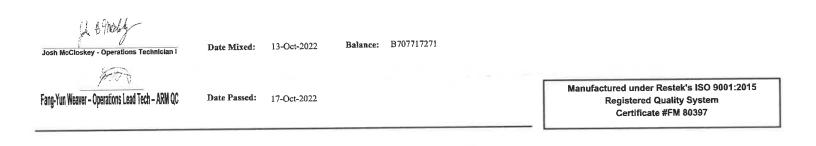
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Det. Type:

250°C



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0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

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Manufacturing Notes:

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Handling Notes:

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



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Catalog No. :	30006	Lot No.:	A0190554	
Description :	VOA Calibration Mix #1			
	VOA Calibration Mix #1 5,000 1mL/ampul	0µg/mL, P&T Methanol/W	/ater(90:10),	
Container Size :	2 mL	Pkg Amt:	> 1 mL	
Expiration Date :	January 31, 2026	Storage:	0°C or colder	
		Ship:	Ambient	

CERTIFIED VALUES

Elution Order		Compound	⁻Grav. Conc. (weight/volume)		Expanded (95% C.L.;	Uncertainty K=2)	
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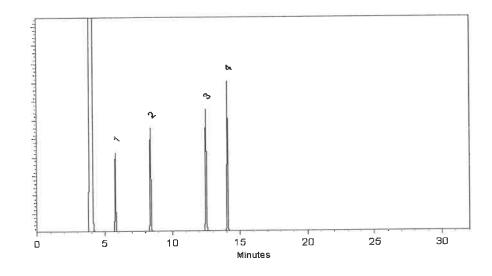
CAS # 67-56-1/7732-18-5

Purity 99%

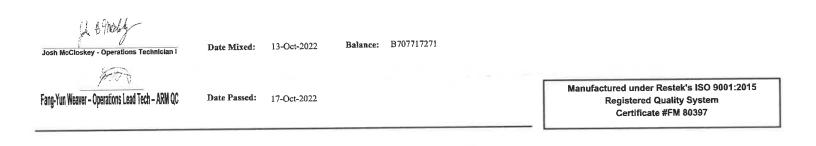
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Det. Type:

250°C



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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus





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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.:	<u>A0193195</u>
Description :	8260B Acetates Mix		
	8260B Acetates Mix 2,000 µg/mL, P&	T Methanol, 1mL	/ampul
Container Size :	2 mL	Pkg Amt:	> 1 mL
Expiration Date :	July 31, 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%	2,019.7 µg/mL	+/- 69.8089
2	Vinyl acetate	108-05-4	RD220630	99%	2,008.3 µg/mL	+/- 69.4172
3	Ethyl acetate	141-78-6	SHBP9289	99%	2,008.3 µg/mL	+/- 69.4172
4	Isopropyl acetate	108-21-4	BCCG7069	99%	2,009.0 μg/mL	+/- 69.4402
5	Propyl acetate	109-60-4	TFFKL	99%	2,019.0 µg/mL	+/- 69.7859
6	Butyl acetate	123-86-4	SHBP6314	99%	2,018.3 μg/mL	+/- 69.7628
7	Amyl acetate	628-63-7	41325/1	97%	2,012.4 µg/mL	+/- 69.5587

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

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

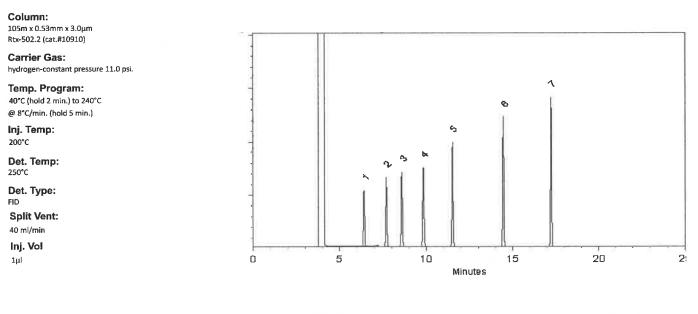
Tech Tips:

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



Balance Serial #

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.

B251644995

All office and

Bethany Lowery - Operations Tech 1

Guint Maria

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 06-Jan-2023

Date Mixed:

04-Jan-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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Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis

Mavantor^{**}



Material No.: 9077-02 Batch No.: 22C2362001 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 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	< 0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.3
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

James Techie Jamie Ethier

Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700 Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700 Page 1 of 1 Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis

Mavantor^{**}



Material No.: 9077-02 Batch No.: 22C2362001 Manufactured Date: 2022-02-15 Expiration Date: 2025-02-14 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	< 0.1 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.3
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis – Below EPA 8260B CRQL	Conforms	Conforms

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

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

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For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700 Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700 Page 1 of 1



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. :	30067	Lot No.:	A0147670				
Description :	4-Bromofluorobenzene Standard						
	4-Bromofluorobenzene Standard 2,5 1mL/ampul	00µg/mL, P&T Me	ethanol,				
Container Size :	2 mL	Pkg Amt:	> 1 mL				
Expiration Date :	April 30, 2024	Storage:	0°C or colder				

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	1-Bromo-4-fluorobenzene (BFB) CAS # 460-00-4 (Lot 20401KO) Purity 99%	1.0	+/- 14.7360 μg/mL Gravimetric +/- 140.8035 μg/mL Unstressed +/- 144.0975 μg/mL Stressed
Solvent:	P&T Methanol		

CAS # 67-56-1

Purity 99%

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

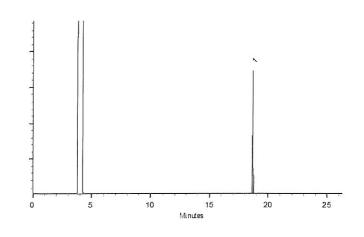
Carrier Gas: hydrogen-constant pressure 11.0 psi.

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

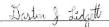
Inj. Temp: 200°C

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.



Dustin Lidgett - Mix Technician Date Mixed:

01-Apr-2019

Balance: 1127510105



Date Passed: 04-Apr-2019

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

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



Certified Reference Material CRM

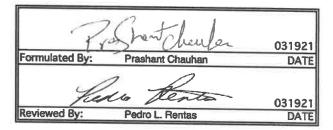
Lot#

DY186-US

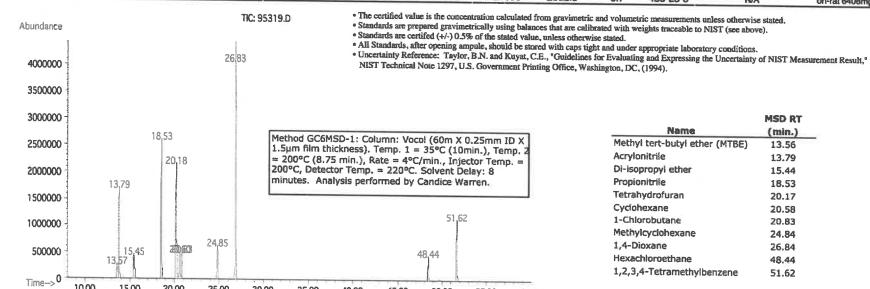


CERTIFIED WEIGHT REPORT

Part Number:	<u>95319</u>		Solvent(s):
Lot Number:	031921		Methanol
Description:	Revised Additions Mix		
	11 components		
Expiration Date:	031924		
Recommended Storage:	Refrigerate (4 °C)		
Nominal Concentration (µg/mL):	Varied		
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty
Weight(s) shown below were combined and dilu	ted to (mL): 100.0	0.012	Flask Uncertainty



Compound	RM#	Lot	Nominal	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS Information at Safety Info. On Attack	ned pg.)
	CO44P	Number	Conc (ug/mL)	(%)	Purity	Weight(g)	Weight(g)	Conc (µg/mL)	(+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
1. Acrylonitrile	7	4718CK	10000	99	0.2	1.01015	1.01040	10002.5	40.5	107-13-1	N/A	
2. 1-Chlorobutane	1072	MKCM5711	2000	99.99	0.2	0.20003	0.20033	2003.0	8.1	109-69-3	N/A N/A	ori-rat 78 mg/kg ori-rat 2670mg/kg
3. Cyclohexane	1023	SHBD2795V	2000	99.5	0.2	0.20101	0.20130	2002.8	8.1	110-82-7	300 ppm (1050mg/m3/8H)	ori-rat 12705mg/kg
4. Di-isopropyl ether (DIPE)	987	00412MX	2000	99	0.2	0.20203	0.20220	2001.7	8.2	108-20-3	500 ppm (2100mg/m3/8H)	orl-rat 8470mg/kg
5. <u>1,4-Dioxane</u>	373	03853KE	40000	99	0.2	4.04060	4.04110	40005.0	161.9	123-91-1		orl-mus 5700mg/kg
6. Hexachloroethane	199	12604HBV	2000	99	0.2	0.20203	0.20230	2002.7	8.2	67-72-1	1 ppm (10mg/m3/8H)(skin)	ori-gpg 4970mg/kg
7. Methylcyclohexane	1627	08046KN	2000	99	0.2	0.20203	0.20235	2003.2	8.2	108-87-2	N/A	N/A
8. Methyl tert-butyl ether (MTBE)	209	02197JJ	2000	99.8	0.2	0.20041	0.20080	2003.9	8.1	1634-04-4	N/A	ori-rat 4g/kg
9. Propionitrile	349	1395468	20000	99	0.2	2.02030	2.02080	20005.0	81.0	107-12-0	N/A	orl-rat 39mg/kg
0. Tetrahydrofuran	380	113886	10000	99.9	0.2	1.00105	1.00140	10003.5	40.1	109-99-9	20 ppm (590mg/m3/8H)	orl-rat 2500mg/kg
11. 1,2,3,4-Tetramethylbenzene	491	AP01	2000	93	0.2	0.21506	0.21536	2002.8	8.7	488-23-3	N/A	orl-rat 6408mg/kg



20.00

25.00

30.00

35.00

40.00

	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

Part # 95319 Lot # 031921

10.00

15.00

55.00

60.00

51,62

48.44

50.00

45.00





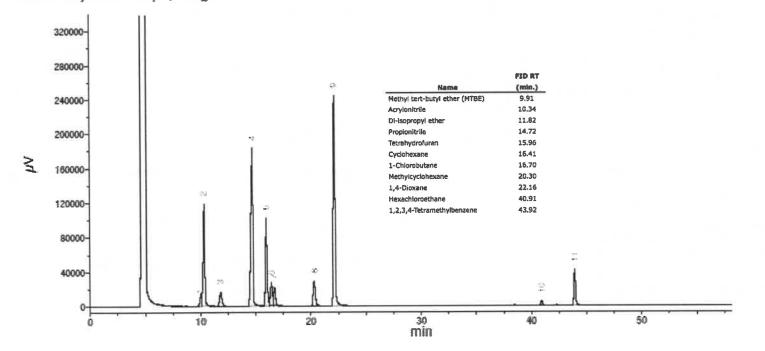
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

Run 44, "P95319 L031921 [Varied in MeOH]"

Run Length: 60.00 min, 36000 points at 10 points/second. Created: Sun, Mar 28, 2021 at 4:18:23 PM. Sampled: Sequence "032421-GC13M1", Method "GC13-M1". Analyzed using Method "GC13-M1".

Comments

GC13-M1 Analysis by Candice Warren Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min., Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min. Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.), Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C. FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=6



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

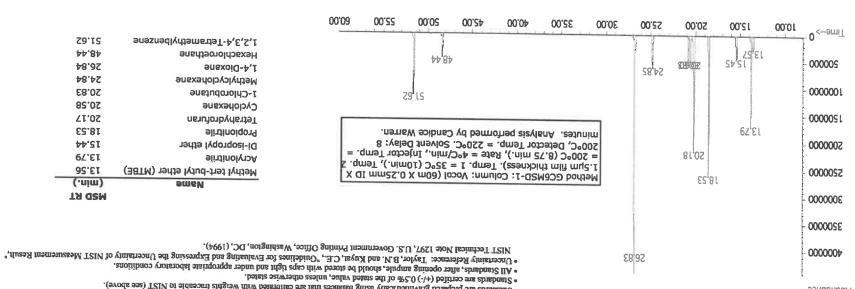


MRC Material Material Certification



www.absolutestandards.com 1511-885-008 Absolute Standards, Inc.

phylom8048 ten-ho	AN	488-53-3	7.8	£.1002	0.21520	0.21506	S.0	63	2000	109A	167	
Mgm0281 ten-ho	(H8/Em/gm062) mqq 0S	6-66-601	1.04	S.10001	02100.1	50100.1	0.2	6'66	10000	0EE8H8HS		eneznedivntementeT-4,6,S,1
end-rat 39mg/kg	AVN	107-12-0	0.18	S.10001.5	2.02045	5.02030	5.0	66	50000		380	letrahydrofuran
gMg4 tsr-ho	AVN	1634-04-4	1.8	\$001.4	0.20055	0.20041	0.2	8.66	5000	1395468	346	Propionitrile
V/N	W/N	108-87-2	8.2	2001.2	0.20215	0.20203	0.2	66		0519711	509	Methyl tert-butyl ether (MTBE)
6m0762 9qg-ho	(nbis)(H8/Em/gm01) mqq 1	1-27-78	8.2	2001.0	0.20213	0.20203	0.2	66	5000	08046KN	1627	Nethylcyclohexane
6m0078 sum-ho	(nbia)(H8/Em/gm06) mqq 85	1-16-EZ1	6.191	40004.0	4.04100	09000.4	0.2		5000	12604HBV	661	exachloroethane
Qm0748 ter-ho	500 ppm (2100mg/m3/8H)	108-50-3	8.2	2001.2	0.20215	0.20203		66	40000	O3823KE	ELE	ensxoid-4,1
emeorst ten-ho	(H8/Em/6m0501) mdd 00E	110-82-7	2.8	2001 S			0.2	66	5000	XMS1400	786	Oi-isopropyl ether (DIPE)
April 2670mg/	Y/N	E-69-601	1.8		0.20215	0.20203	0.2	66	5000	58930	1053	Ovclohexane
Wigm 87 ter-ho	V/N	1-61-201		2.1005	0.20020	0.20003	2.0	66.66	5000	WKCW2111	1072	enstudorohAD-I
	4/34	1-61-201	5.04	S.10001	01030	21010.1	2.0	66	10000	4718CK	L	Pcrylonitrile
רסצס	(AWT) JER AH20	#SVD	(ˈ]ɯ/ðr/) (-/+)	Conc (Jug/mL)	(6)]upieW	Weight(g)	Funty	(%)	Conc (JmL)	Number	#Wa	an in a start of the
("bd pər	SDS Information t Safety Info. On Attact	nevlo2)	Expanded Uncertainty	Actual	kutoA	19 9% T	Uncertainty	Purity	IsnimoM	Lot		punoduog
							Flask Uncertainty	S10.0	0.001	:(јш) ој ре	iniib br	Weight(s) shown below were combined a
D	Pedro L. Rentas	37:	Beweives			Ар	Balance Uncertain	90-39		arua		:#CI 1SeT TSIN
0329	the plants	m								bensV		Nominal Concentration (µg/mL):
	7								(), t	Retrigerate (Recommended Storage:
10										032925		Expiration Date:
/0	Prashant Chauhan	:/8	Formulated						sjue	11 compone		
0356	Stan Windon	ch h							xiM anoth	bbA besiveA		:noitqfinaed
	11-1)	0			EC285-N2	lonsitteM				035855		Lot Number:
	· · · ·				to.	:(s)tnevio2				61256		Part Number:
										27020		FIED WEIGHT REPORT



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Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name	ABSOLUTE STANDARDS INC	ABSOLUTE STANDARDS INC Emergency Telephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr.	Emergency Telephone International	1-352-323-3500
5	Hamden CT, 06514	Date Prepared/Revised	January 1, 2022
Section II - Hazards Identification	tification		

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

	H225 H370 P271 P302,332
Signal Word: DANGER	Highly Flammable Liquid and Vapor Cause damage to organs Use in ventilated area If on skin, wash with soap and water
	H301, 311, 331 H351 P280 P305,351,338
	Toxic if swallowed, skin contact, inhaled Suspected of causing cancer Use gloves, eye protection/face sheild If in eyes, remove contacts, rinse with water

Section III - Composition

Q

Methanol 67-56-1 2,769 mg/kg 200 ppm > 99	Components:	CAS#:	LD50 Oral - Rat	OSHA PEL	% (optional)
	Methanol	67-56-1	2,769 mg/kg	200 ppm	66 <

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

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

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION	Section VIII. EXPOSURE (
Use vertulation 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.	Storage Conditions
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.	Precautions for safe handling
ND STORAGE	Section VII. HANDLING AND STORAGE
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).	Environmental precautions Clean up
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ionition. Vapours accumulate to form explosive concentrations	Personal precautions

Methanol 67-56-1 TWA 200 ppm Skin notation TWA 200 ppm Potential for skin absorption , ingestion and inhalation. Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Section IX - Physical/Chemical Characteristics

Eye protection.

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indards Inc.	

	Checific Gravity (H9O = 1)	
Bolling Point	65°C	0.79
Vapor Pressure (mm Hg)	96 Melting Point	D.86-
Vapor Density (AIR = 1)	1.11 Evaporation rate 1.11 (Butyl Acetate = 1)	46
Solubility in Water COMPLETE		
Appearance and Odor CLEAR, COLORLE	CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR	ENT ODOR.
Section X. STABILITY AND REACTIVITY		
Chemical stability Stable under recommended storage condit Possibility of hazardous reactions Vapours may form explosive mixture with a Conditions to avoid Heat, flames, sparks, extreme temperature Materials to avoid Acid chlorides, Acid anhydrides, Oxidizing Hazardous decomposition products formed under fire conditions Carbon oxides	Stable under recommended storage conditions. Vapours may form explosive mixture with air. Heat, flames, sparks, extreme temperature and sunlight. Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids med under fire conditions Carbon oxides	ig agents, Acids
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.		
Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.	R 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 SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302	Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant micals in this material are subject to the reporting requirements of SARA Title III, Section 302.	absorption, Irritant 2.
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 varied by trained personnel, or substances health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC USCLAMMS ANY OTHERE WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, JTS MEECHANTABILITY OR ITS FTINESS 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.	aments of the United States Occupational Safety and Health Act and comment is intended only as a guide to the appropriate precautionary ponsible for determining the precautions and dangers of this chemi- tors must be used to avoid contact with material or breathing chem- rs substances. Since the potential uses are so varied, ABSOLUTE SIGNUTE STANDARDS INC, warrants that the chemical metes the ESCPLITE STANDARDS INC, warrants that the chemical metes the EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT APPLICATION. The user should recognize that this product can c PRECAUTIONARY INFORMATION. As new documented gener- tary questions, please call Technical Service at 1-203-281-22	i regulations promulgated thereunder (29 CFR rhandling of the material by trained personnel, or cal for his or her particular application. Depending on ical vapors/fumes. Exposure to this product may have TANDARDS INC. cannot warn of all the potential he specifications set forth on the label. ABSOLUTE I SUPPLIED HEREUNDER, ITS ause severe injury or death, especially if improperly al safety information becomes available, Absolute 917 for assistance.

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

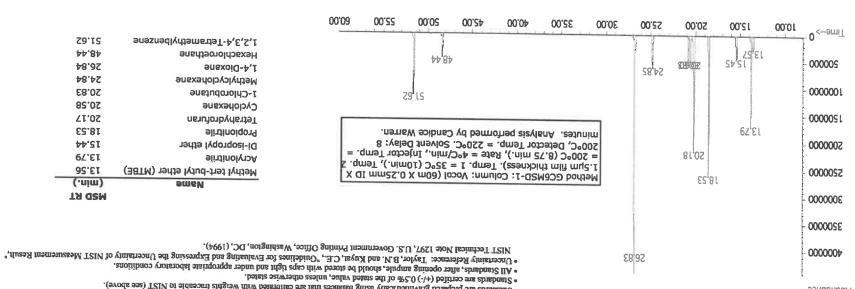


MRC Material Material Certification



www.absolutestandards.com 1511-885-008 Absolute Standards, Inc.

phylom8048 ten-ho	AN	488-53-3	7.8	£.1002	0.21520	0.21506	S.0	63	2000	109A	167	
Mgm0281 ten-ho	(H8/Em/gm062) mqq 0S	6-66-601	1.04	S.10001	02100.1	50100.1	0.2	6'66	10000	0EE8H8HS		eneznedivntementeT-4,6,S,1
end-rat 39mg/kg	AVN	107-12-0	0.18	S.10001.5	2.02045	5.02030	5.0	66	50000		380	letrahydrofuran
gMg4 tsr-ho	AVN	1634-04-4	1.8	\$001.4	0.20055	0.20041	0.2	8.66	5000	1395468	346	Propionitrile
V/N	V/N	108-87-2	8.2	2001.2	0.20215	0.20203	0.2	66		0519711	509	Methyl tert-butyl ether (MTBE)
6m0762 9qg-ho	(nbis)(H8/Em/gm01) mqq 1	1-27-78	8.2	2001.0	0.20213	0.20203	0.2	66	5000	08046KN	1627	Nethylcyclohexane
6m0078 sum-ho	(nbia)(H8/Em/gm06) mqq 85	1-16-EZ1	6.191	40004.0	4.04100	09000.4	0.2		5000	12604HBV	661	exachloroethane
Qm0748 ter-ho	500 ppm (2100mg/m3/8H)	108-50-3	8.2	2001.2	0.20215	0.20203		66	40000	O3823KE	ELE	ensxoid-4,1
emeorst ten-ho	(H8/Em/6m0501) mdd 00E	110-82-7	2.8	2001 S			0.2	66	5000	XMS1400	786	Oi-isopropyl ether (DIPE)
April 2670mg/	Y/N	E-69-601	1.8		0.20215	0.20203	0.2	66	5000	58930	1053	Ovclohexane
Wigm 87 ter-ho	V/N	1-61-201		2.1005	0.20020	0.20003	2.0	66.66	5000	WKCW2111	1072	enstudorohAD-I
	4/34	1-61-201	5.04	S.10001	01030	21010.1	2.0	66	10000	4718CK	L	Pcrylonitrile
רסצס	(AWT) JER AH20	#SVD	(ˈ]ɯ/ðr/) (-/+)	Conc (Jug/mL)	(6)]upieW	Weight(g)	Funty	(%)	Conc (JmL)	Number	#Wa	an un a d
("bd pər	SDS Information t Safety Info. On Attact	nevlo2)	Expanded Uncertainty	Nettal	kutoA	19 9% T	Uncertainty	Purity	IsnimoM	Lot		punoduog
							Flask Uncertainty	S10.0	0.001	:(јш) ој ре	iniib br	Weight(s) shown below were combined a
D	Pedro L. Rentas	37:	Reviewed [Ар	Balance Uncertain	90-39		arua		:#CI 1SeT TSIN
0329	the plants	m								bensV		Nominal Concentration (µg/mL):
	7								(), t	Retrigerate (Recommended Storage:
10										032925		Expiration Date:
/0	Prashant Chauhan	:/8	Formulated						sjue	11 compone		
0356	Stan Windon	ch h							xiM anoth	bbA besiveA		:noitqfinaed
	11-1)	0			EC285-N2	lonsitteM				035855		Lot Number:
	· · · ·				to.	:(s)tnevio2				61256		Part Number:
										27020		FIED WEIGHT REPORT



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Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name	ABSOLUTE STANDARDS INC	ABSOLUTE STANDARDS INC Emergency Telephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr.	Emergency Telephone International	1-352-323-3500
5	Hamden CT, 06514	Date Prepared/Revised	January 1, 2022
Section II - Hazards Identification	tification		

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

	H225 H370 P271 P302,332
Signal Word: DANGER	Highly Flammable Liquid and Vapor Cause damage to organs Use in ventilated area If on skin, wash with soap and water
	H301, 311, 331 H351 P280 P305,351,338
	Toxic if swallowed, skin contact, inhaled Suspected of causing cancer Use gloves, eye protection/face sheild If in eyes, remove contacts, rinse with water

Section III - Composition

Q

Methanol 67-56-1 2,769 mg/kg 200 ppm > 99	Components:	CAS#:	LD50 Oral - Rat	OSHA PEL	% (optional)
	Methanol	67-56-1	2,769 mg/kg	200 ppm	66 <

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

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

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION	Section VIII. EXPOSURE (
Use vertulation 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.	Storage Conditions
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.	Precautions for safe handling
ND STORAGE	Section VII. HANDLING AND STORAGE
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).	Environmental precautions Clean up
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ionition. Vapours accumulate to form explosive concentrations	Personal precautions

Methanol 67-56-1 TWA 200 ppm Skin notation TWA 200 ppm Potential for skin absorption , ingestion and inhalation. Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. Section IX - Physical/Chemical Characteristics

Eye protection.

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indards Inc.	

	Checific Gravity (H9O = 1)	
Bolling Point	65°C	0.79
Vapor Pressure (mm Hg)	96 Melting Point	D.86-
Vapor Density (AIR = 1)	1.11 Evaporation rate 1.11 (Butyl Acetate = 1)	46
Solubility in Water COMPLETE		
Appearance and Odor CLEAR, COLORLE	CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR	ENT ODOR.
Section X. STABILITY AND REACTIVITY		
Chemical stability Stable under recommended storage condit Possibility of hazardous reactions Vapours may form explosive mixture with a Conditions to avoid Heat, flames, sparks, extreme temperature Materials to avoid Acid chlorides, Acid anhydrides, Oxidizing Hazardous decomposition products formed under fire conditions Carbon oxides	Stable under recommended storage conditions. Vapours may form explosive mixture with air. Heat, flames, sparks, extreme temperature and sunlight. Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids med under fire conditions Carbon oxides	ig agents, Acids
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.		
Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.	R 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 SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302	Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant micals in this material are subject to the reporting requirements of SARA Title III, Section 302.	absorption, Irritant 2.
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Absolute 800-368-1131	Absolute Standards, Inc. 800-368-1131	4			Certified	Rafaranc	Certified Reference Matarial COM					ANAB ISC	ANAB ISO 17034 Accredited
www.absoli	www.absolutestandards.com	5									\$	AR-1539 https://Absc	AR-1539 Certificate Number https://Absolutestandards.com
CERTIFIED V	CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description:	70046 070122 Bromochloromethane	omethane			Solvent: Methanol	Lot# EC592-US			Hebriel	& Hellon		
Nr Weight(Constant of Constant Expiration Date: 070127 Recommended Storage: Refrigeration Nominal Concentration (µg/mL): 1000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL):	070127 Refrigerate (4 °C) 1000 6UTB d diluted to (mL):	(4 °C) 25.0	5E-05 0.0002	Balance Uncertainty Flask Uncertainty	flainty nty			Formulated By:	ten .	dro		DATE DATE 070122 DATE
Compound		Lot RM# Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity (%)	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	CA	SDS Information (Solvent Safety Info. On Attached pg.) S# OSHA PEI (TWA)	on ttached pg.)	
1. Bromoci Metho Candic	Bromochloromethane 46 AY01 1000 99 0.2 0.02530 0.02540 1004.1 5.7 74-97-5 200 ppm (1050mg/m30H) Method GC 6MSD-1.M: Column : (60m X 0.25mm X 1.5 μ m) Temp 1 = 35°C (10min.), Temp 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector B = 200°C, Detector B = 220°C. Analyst:	46 AY01 X 0.25mm X 1.5 µ	1000 24 Temp 1 = 3	99 5°C (10r	0.2 nin.), Temp (0.02530 2 = 200°C (8	0.02540 8.75 min.), Rate	1004.1 c = 4°C/min.	5.7 , Injector B	74-97-5 = 200°C, Dete	200 ppm (1050mg/m3/8H) cctor B = 220°C. Analys	orl-rat	6y/6
Abundance		TIC: 70046.D				Abur	dbundance		Scan 1136	Scan 1136 (19.943 min): 70046.D			
	1992					Υ.	30000 -	9 9					
100000						2	25000 -				∞ <u> </u>	T L	
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Time->0 +	1000 15.00 20.00 25.00	30.00 35.00 4	40.00 45.00	50.00	55.00 60.00		m/2>0 - 37 30 40	20	63 60 70	80	90 100 110	120 130	140
	 The c Stand Stand Stand All St Unset NIST T 	 The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above). Standards are retrifted (+i-) 0.5% of the stated value, unless otherwise stated. All standards, after opening ampule, should be stored with experiment and under appropriate laboratory conditions. Uncertaintly 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). 	ncentration calcul avimetrically using 0.5% of the stated g ampule, should b ylor, B.N. and Kuy J.S. Government P.	ated from t balances l value, un e stored v at, C.E., rinting Of	gravimetric an that are calibry less otherwise. ifth caps tight i 'Guidelines for fice, Washingtt	id volumetric r ated with weig stated. and under app Evaluating an DC, (1994).	neasurements unl hts traceable to N ropriate laborato id Expressing the	ess otherwise : IST (see above cy conditions, Uncertainty of	stated. .). f NIST Measu	rement Result,"			

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1 of 1

Part # 70046 Lot # 070122



Certified Reference Material CRM

Solvent(s):

Lot#



800-368-1131 www.absolutestandards.com CERTIFIED WEIGHT REPORT Part Number: 95317

	per: <u>90317</u> per: <u>112921</u>	1							Solvent(s):					~	1	
		L al VOA Mega	ambr						Methanol	EA899-USQ	2			1	hentolul	1120.01
		nponents											Formulate	of Bar	Prashant Chauhan	112921 DATE
Expiration Da	ale: 112924											1	- Of HIGHING	u by	FIGDING IL CINCUMET	UATE
Recommended Store		(0°C)										1		1.1	1 0	
Nominal Concentration (ug/m	L): 2000											1		Yes	16 Dento	112921
NIST Test I	D#: 6UTB			5E-0	5 Balance Uncert	relaty						1	Reviewed	By:	Pedro L. Fientas	DATE
Weight(s) shown below were combin	ed and diule	ed to (mL):	100.	.0 0.01	2 Plask Uncertain	inty						3				DATE
													Expanded		SDS Information	
	(RM#)	Lot	DH.	Initial	f Initial	Nominal	Purity	Purity	Uncertainty	Target	Actual	Actual	Uncertainty	(Soly	ent Safety Info. On Attac	chect on)
Compound	Part Numb	ar Number	Facto	w Vol. (mi	L) Conc.(ug/mL)) Conc (µg/m	4.) (%)	Uncertainty	y Pipette (mL)	Weight(g)	Weight(g)	Conc (ug/mL)		CAS#	OSHA PEL (TWA)	LD50
Acetonitrile	(0324)	060812	NA	NA:	NA	2000	99.9	0.2	NA	0.20021	0.20032	2001.1	8.1	75-05-8	40 ppm (70mg/m3/8H)	orl-ret 2460mg/kg
Altyl chloride (3-Chloropropene)	(0326)	102396	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20222	2001.9	8.2	107-05-1	1 ppm (3mg/m3/8H)	ort-rai 700mg/kg
Carbon disuphide	(0000)	MKCD960-	34 NA	NA	NA	2000	100	0.2	NA	0.20001	0.20015	2001.4	8.1	75-15-0	4 ppm (12mg/m3) (skin)	orl-net 1200mg/kg
cis-1,4-Dichloro-2-butene	(1196)	14710EF		NA	NA	2000	95	0.2	NA	0.21054	0.21050	2000.6	8.5	1476-11-5	N/A	N/A
trans-1,4-Dichloro-2-butene	(0488)	MKBP8041	IV NA	NA	NA	2000	96.5	0.2	NA	0.20726	0.20735	2000.8	8.4	110-57-6	N/A	N/A
Diethyl ether (Ethyl ether)	(0153)	SHBK1918	8 NA	NA	NA	2000	99.9	0.2	NA	0.20023	0.20025	2000.2	8.1	80-29-7	400ppm (1200mg/m3/6H)	orl-rat 1215mg/kg
Ethyl methacrylate	(0381)	06126PX		NA	NA	2000	99	0.2	NA	0.20203	0.20208	2000.5	8.2	97-63-2	NA	ori-rat 14800mg/kg
lodomethane	(0489)	SH8F8718			NA	2000	99.5	0.2	NA	0.20101	0.20110	2000.8	8.1	74-88-4	5 ppm(28mg/m3/8H)(skin)	orl-rat 76mg/kg
2-Methyl-1-propanol	(0445)	15241EB		NA	NA	2000	09,5	0.2	NA	0.20101	0.20122	2002.0	8.1	78-83-1	50 ppm (150mg/m3/8H)	orf-rat 2460mg/kg
Methacrylonitrile	(0442)	00427ET		NA	NA	2000	99	0.2	NA	0.20203	0.20211	2000.8	8.2	128-98-7	1 ppm (3mg/m3/8H)(eldn)	orl-rat 120mg/kg
Methyl acrylate	(1075)	SHBK0879		NA	NA	2000	99.9	0.2	NA	0.20021	0.20026	2000.5	8.1	96-33-3	10 ppm(35mp/m3/8H)(skin)	
Methyl methacrylate	(0404)	MKBW6137		NA	NA	2000	99.9	0.2	NA	0.20021	0.20045	2002.4	8.1	80-62-6	100 ppm (410mg/m3/8H)	orl-rat 7872mg/kg
Nitrobenzene	(0228)	01213TV		NA	NA	2000	99	0.2	NA	0.20203	0.20231	2002.8	8.2	98-95-3	1 ppm (Sing/m3/8Hi)(skin)	ori-rat 780mg/kg
2-Nitropropane	(0461)	14002JX		NA	NA	2000	97.3	0.2	NA	0.20556	0.20562	2000.6	8.3	79-46-9	10 ppm (35mg/m3/8H)	orl-rail 720mg/kg
Pentachioroethane	(0450)	HGA01	NA	NA	NA	2000	98	0.2	NA	0.20409	0.20412	2000.3	8.2	76-01-7	N/A	NA
1,1,2-Trichlorotrilluoroethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA	0.20203	0.20213	2001.0	8.2	78-13-1	1000 ppm (7900mg/m3/8H)	
Bromodichloromethane	35171	051121	0.05	5.00	40015.4	2000	NA	NA	0.017	NA	NA	2000.7	18.4	75-27-4	N/A	orl-rat 916mg/kg
Dibromochloromethane	35171	051121	0.05		40042.8	2000	NA	NA	0.017	NA	NA	2002.0	18.4	124-48-1	N/A	ori-rat 848mg/kg
cis-1,2-Dichloroethene	35171	051121	0.05		40003.1	2000	NA	NA	0.017	NA	NA	2000.1	18,4	156-69-2	N/A	N/A
trans-1,2-Dichloroethene	35171	051121	0.05	5.00	40008.5	2000	NA	NA	0.017	NA	NA	2000.3	18.4	156-60-5	N/A	orl-rat 1235mgAg
Methylene chloride	35171	051121	0.06	5.00	40021.1	2000	NA	NA	0.017	NA	NA	2001.0	18.4	75-09-2	500 ppm	ori-rat 620mg/kg
1,1-Dichloroethene	32251	070721	0.10	10.00	20014.9	2000	NA	NA	0.042	NA	NA	2001,4	19.3	75-35-4	I ppm (4mg/m3/8E-f)	orl-rat 200mg/kg
Bromoform	95321	010419	0.10	10.00	20001.7	2000	NA	NA	0.042	NA	NA	2000.1	19.3	75-25-2	0.6 ppm (5mg/m3) (skin)	orl-rat 833mg/kg
Carbon tetrachioride	95321	010419	0.10	10.00	20001.3	2000	NA	NA	0.042	NA	NA	2000.0	19.2	58-23-5	2 ppm (12.6mg/m3/8H)	orl-rat 2350mgAg
Chierotorm	95321	010419	0.10	10.00	20001.8	2000	NA	NA	0.042	NA	NA	2000.1	19.2	67-66-3	50 ppm (240mg/m3) (CL)	orl-rat 908mg/kg
Dibromomethane	95321	010419	0.10	10.00	20001.7	2000	NA	NA	0.042	NA	NA	2000.1	19.3	74-95-3	N/A	orf-rat t08mg/kg
1,1-Dichloroethane	95321	010419	0.10	10.00	20000.8	2000	NA	NA	0.042	NA	NA	2000.0	19,3	75-34-3	100 ppm	orl-rat 725mg/kg
2,2-Dichloropropane	95321	010419	0.10	10.00	20002.1	2000	NA	NA	0.042	NA	NA	2000.1		594-20-7	N/A	N/A
Tetrachloroethene	95321	010418	0.10	10.00	20002.2	2000	NA	NA	0.042	NA	NA	2000,1		127-18-4	25 ppm (170mg/m3/8H)(final)	the second se
1,1,1-Trichloroethane	95321	010419	0.10	10.00	20001.7	2000	NA	NA	0.042	NA	NA	2000.1	19.3	71-55-6	350 ppm (1900mg/m3/8H)	orl-rat \$0300mg/kg
1,2-Dibromo-3-chioropropane	35161	102821	0.05	5.00	40006.0	2000	NA	NA	0.017	NA	NA	2000.2	18.4	98-12-8	0.001 ppm	orl-rat 170mg/kg
1,2-Dibromoethane	35181	102821	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.5		108-93-4	20 ppm (6H)	ort-rat 108mg/kg
1,2-Dichloroethane	35161	102821	0.05	5.00	40004.0	2000	NA	NA	0.017	NA	NA	2000.1		107-06-2	50 ppm (8H)	ort-rat 670mg/kg
1,2-Dichloropropane	35161	102821	0.06	5.00	40016.9	2000	NA	NA	0.017	NA	NA	2000.7	18.4	78-87-5	76 ppm (360mg/m3/8H)	orl-ret 1947mp/kg
1,3-Dichloropropane	35161	102821	0.05	5.00	40003.9	2000	NA	NA	0.017	NA	NA	2000.1	18.4	142-28-9	N/A	unr-mus 3600mg/kg
1,1-Dichloropropene	35161	102821	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	2000.2		563-58-6	NA	N/A
cis-1,3-Dichloropropene	35161	102821	0.05	5.00	40013.7	2000	NA	NA	0.017	NA	NA	2000.6		0061-01-5	N/A	N/A
trans-1,3-Dichloropropene	35161	102821	0.05	5.00	40002.0	2000	NA	NA	0.017	NA	NA	2000.0		0061-02-0	N/A	N/A
Hexachloro-1,3-butadiene	35161	102821	0.05	5.00	40014.0	2000	NA	NA	0.017	NA	NA	2000.6		87-68-3	0.02 ppm (0.24mg/m3/8H)	orl-rat 62mg/kg
1,1,1,2-Tetrachiomethane	35161	102821	0.05	5,00	40010.9	2000	NA	NA	0.017	NA	NA	2000.4		630-20-6	NA	orl-rat 670mg/kg
1,1,2,2-Tetrachioroethane	35161	102821	0.05	5.00	40015.0	2000	NA	NA	0.017	NA	NA	2000.7	18.4	79-34-5	5 ppm (35mg/m3/9H)(ekin)	orl-rat soomgikg
1,1,2-Trichloroethane	35161	102821	0.05	5.00	40011.7	2000	NA	NA	0.017	NA	NA	2000.5		79-00-5	10 ppm (45mg/m3/8H)(skin)	ori-rat 836mg/kg
Trichloroethene	35161	102821	0.05	5.00	40003.3	2000	NA	NA	0.017	NA	NA	2000.1		79-01-6	50 ppm (270mg/m3/8H)	ort-mue 2402mg/kg
1.2.3-Trichloropropane	36161	102821	0,05	5.00	40006.2	2000	NA	NA	0.017	NA	NA	2000.2		96-18-4	10 ppm (80mg/m3/8H)	orl-rat 149.6mg/kg
Benzene	35182	020821	0.05	5,00	40008.9	2000	NA	NA	0.017	NA	NA	2000.3		71-43-2	1 ppm	orl-rat 4894mg/kg
Sromobenzene	35162	020821	0.05	5.00	40019.0	2000	NA	NA	0.017	NA	NA	2000.9		108-86-1	N/A	orl-rat 2699mg/kg
-Butyl benzene	35162	020821	0.05	5.00	40019.8	2000	NA	NA	0.017	NA	NA	2000.9		104-51-8	NA	NA
Ethyl benzene	35162	020821	D.05	5.00	40000.9	2000	NA	NA	0.017	NA	NA	1999.9		100-41-4	100 ppm (435mg/m3/6H)	orl-ral >2000mg/kg
-isopropyl toluene	35162	020621	0.05	5.00	40058.4	2000	NA	NA	0.017	NA	NA	2002.7		99-87-8	N/A	ort-rat 4750mg/kg
Naphthalene	36162	020621	0.05	5.00	40005.1	2000	NA	NA	0.017	NA	NA	2000.2		91-20-3	10 ppm (50mg/m3/8H)	orf-rat 490mg/kg
ityrene	35182	020821	0.05	5.00	40022.8	2000	NA	NA	0.017	NA	NA	2001.0		100-42-5	100 ppm	orf-rat 5000mg/kg
oluene	35162	020821	0.05	5.00	40008.9	2000	NA	NA	0.017	NA	NA	2000.3		108-88-3	200 ppm	orl-rat 5000mg/kg
,2,3-Trichlorobenzene	35162	020821	0.05	5,00	40002.0	2000	NA	NA	0.017	NA	NA	2000.0	18.4 (87-61-8	N/A	ipr-mus 1390mp/kg
.2,4-Trichlorobenzene	36162	020821	0.05	5.00	40027.4	2000	NA	NA	0.017	NA	NA	2001.3		20-82-1	8 ppm (CL) (40mg/m3)	orl-rat 756mg/kg
2,4-Trimethylbenzene	35162	020821	0.05	5.00	40012.4	2000	NA	NA	0.017	NA	NA	2000.5		95-63-6	N/A	orl-rat 5g/kg
3,5-Trimethylbenzene	35162	020821	0.05	5.00	40011.5	2000	NA	NA	0.017	NA	NA	2000.5		08-67-8	N/A	orl-rat 5000mg/kg
n-Xylene	35162	020821	0.05	5.00	40021.8	2000	NA	NA	0.017	NA	NA	2001.0		08-38-3	100 ppm (435mg/m3/8H)	orl-ret 5g/kg
art-Butyl banzane	35163	022521	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	2000.2		98-06-8	NA	N/A
ec-Butyl benzene	35163	022521	0.05	5.00	40011.7	2000	NA	NA	0.017	NA	NA	2000.5		36-98-8	NA	orl-rat 2240mg/kg
hlorobenzene	35163	022521	0.05	5.00	40009.0	2000	NA	NA	0.017	NA	NA	2000.4		08-90-7	76 ppm (350mg/m3/8H)	orl-rat 2290mg/kg
Chlorotoluene	35163	022521	0.05	5.00	40002.0	2000	NA	NA	0.017	NA	NA	2000.0		95-49-8	60 ppm (250mg/m3/8H)	orl-rat 3900mg/kg
Chlorotoluene	35163	022521	0.05	5.00	40000.4	2000	NA	NA	0.017	NA	NA	1999.9		06-43-4	N/A	orf-rat 2100mg/kg
2-Dichlorobenzene	35163	022521	0.05		40004.0	2000	NA	NA	0.017	NA	NA			95-50-1	50 ppm (300mg/m3) (CL)	orl-rat 600mg/kg
3-Dichlorobenzene	35163	022521	0.05		40003.6	2000	NA	NA	0.017	NA	NA	2000.1		41-73-1		pr-mue 1062mg/kg
4-Dichlorobenzene	35163	022521	0.05		40005.0	2000	NA	NA	0.017	NA	NA			06-46-7	75 ppm (450mg/m3/8H)	
opropylbenzene	35163	022521	0.05		40007.4	2000	NA	NA	0.017	NA	NA			98-82-8	50 ppm (245mg/m3/8H)	ori-rat 500mg/kg
Propylbenzene					40004.6	2000	NA	NA								orf-net 1400mg/kg
	35163	022521	0.05	5.00	40004.0	2000	1975	- 110	0.017	NA	NA				21/8	
Xylene	35163 35163		0.05		40003.0	2000	NA		0.017	NA	NA			03-65-1	N/A	orl-rat 6040mg/kg
		022521	0.05	5.00				NA NA	0.017	NA NA NA	NA NA NA	2000.1	18.4 9	03-00-1 95-47-6 06-42-3		orl-rat 6040mg/kg ipr-mus 1384mg/kg orl-rat 5g/kg

The certified value is the concentration calculated from gravimetric and valuemetric measurement unless otherwise trated.
 Standards are propared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards, are propared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards, are replaced of 30% of the stated value, name attentive stated.
 All Standards, nitre opening ampute, shoeld be stored with caps tight and under appropriate laboratory conditions.
 Covertainty Reference: Tsylor, IN, and Kuya, C.K., "Guidelines for Valuating and Expressing the Uncertainty of NIST Measurement Result,"
 NIST Technical Note 1297, U.S. Government Printing Office, Wandington, DC, (1994).

PO Box 5585 Hamden, CT 06518-0585

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section | Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	1-800-535-5053
Address	44 Rossotto Dr. Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	1-352-323-3500 January 1, 2022
Section II - Hazards Iden	tification		

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

H225	Highly Flammable Liquid and Vapor	H301, 311, 331	Toxic if swallowed, skin contact, inhaled
H370	Cause damage to organs	H351	
		H 391	Suspected of causing cancer
P271	Use in ventilated area	P280	Use gloves, eye protection/face sheild
P302.332	If on skin, wash with soap and water	P305.351.338	
1.005,005	ii on skin, wash with soap and water	F305,551,536	If in eyes, remove contacts, rinse with water
~			
	Signal Word: DANGER		
< 378 >	Charles Carles Orginal Word, DANGER		

Section III - Composition

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

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL Section IV. FIRST AID MEASURES

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	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	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Flammability	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	Phone: 203-281-2917 FAX: 203-281-2922
Boiling Point	0590	Specific Gravity (H2O = 1)	0.79
Vapor Pressure (mm Hg)	65°C	Melting Point	-98°C
Vapor Density (AIR = 1)	96	Evaporation rate (Butyl Acetate = 1)	4.6
Solubility in Water COMPLETE			t
Appearance and Odor CLEAR, CC	LORLESS LIQUID W	ITH CHARACTERISTIC PUNGENT	ODOR.
Section X. STABILITY AND REACTIVI	ГҮ		
Materials to avoid Acid chlo Hazardous decomposition products formed under Section XI. TOXICOLOGICAL INFORM 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 irrita Eye damage/eye irritation	er fire conditions Carbon IATION	kidizing agents, Alkali metals, Reducing ag	ents, Acids
Toxic if inhaled. Causes respiratory tract irritation Toxic if swallowed.	n.		
Section XII. ECOLOGICAL INFORMAT	ION FOR REPORTA	BLE 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 CONSIDERAT	IONS		
Dispose with normal Laboratory Solvent Waste.			
Section XIV. TRANSPORT INFORMAT	ION		
DOT (US) UN number: 1230 Class: 3 Packing grou Proper shipping name: Methanol	IATA up: II UN number: Proper shipp	1230 Class: 3 Packing group: II ing name: Methanol	
Section XV. REGULATORY INFORMA	TION		

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. MARRANTIES, 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.