

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

8900, Fax: 908 789 8922

Prep Standard - Chemical Standard Summary

Order ID :	Q1531

Test: VOCMS Group1

Prepbatch ID:

Sequence ID/Qc Batch ID: VX031025,VX031125,VX031225,

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VP131746,VP131767,VP132035,VP132096,VP133036,VP133174,VP133178,VP133235,VP133236,VP133237,VP133244,VP133245,VP133246,VP133255,VP133256,

Chemical ID:

V13391, V13457, V13460, V13466, V13706, V14154, V14175, V14176, V14289, V14433, V14439, V14521, V14522, V14613, V14614, V14624, V14630, V14631, V14632, V14633, V14722, V14723, V14724, V14744, V14754, V14809, V14814, V14842, V14872, V14873, V14874, V14875, W3112, V14874, V14874, V14874, V14875, W3112, V14874, V1487





VOC STANDARD PREPARATION LOG

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

FROM	0.50000ml of V14289 + 49.50000ml of V14154 = Final Quantity: 50.000 ml	ı
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Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
218	BFB, 25PPM	<u>VP131767</u>	11/22/2024	05/18/2025	Semsettin Yesilyurt	None	None	11/27/2024

FROM 0.50000ml of V13391 + 49.50000ml of V14154 = Final Quantity: 50.000 ml





VOC STANDARD PREPARATION LOG

Recipe <u>ID</u> 1810	NAME 8260 Working Std(2-CVE)-800ppm	<u>NO.</u> VP132035	Prep Date 12/10/2024	Expiration Date 06/10/2025	Prepared By Semsettin Yesilyurt	<u>ScaleID</u> None	PipetteID None	Supervised By Mahesh Dadoda 12/12/2024			
FROM	FROM 1.00000ml of V14630 + 1.00000ml of V14631 + 1.00000ml of V14632 + 1.00000ml of V14633 + 46.00000ml of V14614 = Final										

1.00000ml of V14630 + 1.00000ml of V14631 + 1.00000ml of V14632 + 1.00000ml of V14633 + 46.00000ml of V14614 = Final Quantity: 50.000 ml

Recipe ID	NAME.	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
719	8260 Working STD (BCM)-First source, 400PPM	<u>VP132096</u>	12/12/2024	06/10/2025	Semsettin Yesilyurt	None	None	12/19/2024

FROM 1.00000ml of V13465 + 1.00000ml of V13466 + 1.50000ml of V13457 + 1.50000ml of V13460 + 20.00000ml of V14614 = Final Quantity: 25.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID 51	NAME 8260 Working STD (Acrolein) -first source, 800PPM	NO. VP133036	Prep Date 02/14/2025		Prepared By Semsettin Yesilyurt	ScaleID None	PipetteID None	Supervised By Mahesh Dadoda		
	Source, Gooff IVI				resilyurt			02/18/2025		
FROM 1.00000ml of V14872 + 1.00000ml of V14873 + 1.00000ml of V14874 + 1.00000ml of V14875 + 21.00000ml of V14624 = Final										

 $1.00000ml\ of\ V14872+1.00000ml\ of\ V14873+1.00000ml\ of\ V14874+1.00000ml\ of\ V14875+21.00000ml\ of\ V14624\ =\ Final\ Fina$ Quantity: 25.000 ml

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
617	8260 Surrogate, 400PPM	<u>VP133174</u>	02/27/2025	08/27/2025	Semsettin Yesilyurt	None	None	03/04/2025

FROM 0.40000ml of V13706 + 24.60000ml of V14613 = Final Quantity: 25.000 ml



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

Fax: 908 789 8922

VOC STANDARD PREPARATION LOG

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
257	8260 Calibration Working STD Mix-First source, 160PPM	<u>VP133178</u>	02/27/2025	03/31/2025	Semsettin Yesilyurt	None	None	03/04/2025

FROM

 $0.40000ml\ of\ V14842+1.00000ml\ of\ V14175+1.00000ml\ of\ V14176+1.00000ml\ of\ V14433+1.00000ml\ of\ V14439+1.00000ml\ of\ V14521+1.00000ml\ of\ V14522+1.00000ml\ of\ V14724+1.00000ml\ of\ V14744+1.00000ml\ of\ V14744+1.00000ml\ of\ V14754+1.00000ml\ of\ V14809+1.00000ml\ of\ V14814+1.50000ml\ of\ V14722+1.50000ml\ of\ V14723+10.60000ml\ of\ V14613\ =\ Final\ Quantity:\ 25.000\ ml$

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	ScaleID	<u>PipetteID</u>	Supervised By
589			03/10/2025	03/11/2025	John Carlone	None	None	Romaben Patel
								03/11/2025

FROM 39.98400ml of W3112 + 0.01600ml of VP131767 = Final Quantity: 40.000 ml



284 Sheffield Street, Mountainside, New Jersey 07092, Phone: 908 789 8900, Fax: 908 789 8922

VOC STANDARD PREPARATION LOG

Recipe ID 620	NAME 50 PPB CCC, 8260-Water	NO. VP133236	Prep Date 03/10/2025	Expiration Date 03/11/2025	Prepared By John Carlone	ScaleID None	PipetteID None	Supervised By Romaben Patel 03/11/2025			
FROM	FROM 39.94450ml of W3112 + 0.00500ml of VP132096 + 0.00500ml of VP133174 + 0.00800ml of VP131746 + 0.01250ml of										

39.94450ml of W3112 + 0.00500ml of VP132096 + 0.00500ml of VP133174 + 0.00800ml of VP131746 + 0.01250ml of VP1300 of VP131746 + 0.0080ml of VP131746 + 0.0080ml of VP1300 of VP131746 + 0.0080ml of VP1300 of VP1 VP132035 + 0.01250ml of VP133036 + 0.01250ml of VP133178 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Romaben Patel
620	50 PPB CCC, 8260-Water	<u>VP133237</u>	03/10/2025	03/11/2025	John Carlone	None	None	
								03/11/2025

FROM 39.94450ml of W3112 + 0.00500ml of VP132096 + 0.00500ml of VP133174 + 0.00800ml of VP131746 + 0.01250ml of VP132035 + 0.01250ml of VP133036 + 0.01250ml of VP133178 = Final Quantity: 40.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Romaben Patel
589	BFB TUNE CHECK	<u>VP133244</u>	03/11/2025	03/12/2025	John Carlone	None	None	02/44/2025
								03/11/2025

FROM	39.98400ml of W3112 + 0.01600ml of VP131767	= Final Quantity: 40.000 ml
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Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Romaben Patel
620	50 PPB CCC, 8260-Water	<u>VP133245</u>	03/11/2025	03/12/2025	John Carlone	None	None	03/11/2025

FROM 39.94450ml of W3112 + 0.00500ml of VP132096 + 0.00500ml of VP133174 + 0.00800ml of VP131746 + 0.01250ml of VP132035 + 0.01250ml of VP133036 + 0.01250ml of VP133178 = Final Quantity: 40.000 ml





VOC STANDARD PREPARATION LOG

Recipe ID 620	NAME 50 PPB CCC, 8260-Water	NO. VP133246	Prep Date 03/11/2025	Expiration Date 03/12/2025	Prepared By John Carlone	<u>ScaleID</u> None	PipetteID None	Supervised By Romaben Patel 03/11/2025
FROM	39.94450ml of W3112 + 0.00500ml o	f VP132096	+ 0.00500ml	of VP133174 -	+ 0.00800ml of \	/P131746 + 0.0	1250ml of	

39.94450ml of W3112 + 0.00500ml of VP132096 + 0.00500ml of VP133174 + 0.00800ml of VP131746 + 0.01250ml of VP1300 of VP131746 + 0.0080ml of VP131746 + 0.0080ml of VP1300 of VP131746 + 0.0080ml of VP1300 of VP1 VP132035 + 0.01250ml of VP133036 + 0.01250ml of VP133178 = Final Quantity: 40.000 ml

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	NAME.	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
589	BFB TUNE CHECK	<u>VP133254</u>	03/12/2025	03/13/2025	John Carlone	None	None	
								03/14/2025

FROM 39.98400ml of W3112 + 0.01600ml of VP131767 = Final Quantity: 40.000 ml



FROM

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

VOC STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Mahesh Dadoda
620	50 PPB CCC, 8260-Water	<u>VP133255</u>	03/12/2025	03/13/2025	John Carlone	None	None	03/14/2025
	I	l .						

 $39.94450ml\ of\ W3112+0.00500ml\ of\ VP132096+0.00500ml\ of\ VP133174+0.00800ml\ of\ VP131746+0.01250ml\ of\ VP132035+0.01250ml\ of\ VP133036+0.01250ml\ of\ VP133178=Final\ Quantity:\ 40.000\ ml$

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	<u>NO.</u>	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Mahesh Dadoda
620	50 PPB CCC, 8260-Water	<u>VP133256</u>	03/12/2025	03/13/2025	John Carlone	None	None	
								03/14/2025

FROM 39.94450ml of W3112 + 0.00500ml of VP132096 + 0.00500ml of VP133174 + 0.00800ml of VP131746 + 0.01250ml of VP132035 + 0.01250ml of VP133036 + 0.01250ml of VP133178 = Final Quantity: 40.000 ml



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30067 / BFB tuneing solution	A0191805	11/22/2025	11/22/2024 / SAM	01/13/2023 / SAM	V13391
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	06/12/2025	12/12/2024 / SAM	01/27/2023 / SAM	V13457
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	06/12/2025	12/12/2024 / SAM	01/27/2023 / SAM	V13460
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	06/12/2025	12/12/2024 / SAM	01/27/2023 / SAM	V13465
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul	A0193071	06/12/2025	12/12/2024 / SAM	01/27/2023 / SAM	V13466
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2]	A0196865	02/27/2026	02/27/2025 / SAM	04/12/2023 / SAM	V13706



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	05/18/2025	11/18/2024 / pedro	02/06/2024 / SAM	V14154
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624	07/10/2025	01/10/2025 / SAM	02/20/2024 / SAM	V14175
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	95317 / Universal VOA Mega Mix (Min order = 5)	021624	07/10/2025	01/10/2025 / SAM	02/20/2024 / SAM	V14176
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555581 / Custom Standard, 8260 Internal Std [CS 5179-1]	A0210184	11/22/2025	11/22/2024 / SAM	04/15/2024 / SAM	V14289
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0209618	07/10/2025	01/10/2025 / SAM	08/15/2024 / SAM	V14433
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL	A0209618	07/10/2025	01/10/2025 / SAM	08/15/2024 / SAM	V14439



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)	091724	07/10/2025	01/10/2025 / SAM	09/18/2024 / SAM	V14521
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)	091724	07/10/2025	01/10/2025 / SAM	09/18/2024 / SAM	V14522
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	08/27/2025	02/27/2025 / SAM	11/26/2024 / SAM	V14613
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	22L0562016	06/10/2025	12/10/2024 / SAM	11/26/2024 / SAM	V14614
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA9077-02 / Methanol, Purge/Trap (cs=6x1L)	2310762004	07/13/2025	01/13/2025 / SAM	11/26/2024 / SAM	V14624
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ 2-Chloroethyl vinyl ether	120524	06/10/2025	12/10/2024 / SAM	12/06/2024 / SAM	V14630



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ 2-Chloroethyl vinyl ether	120524	06/10/2025	12/10/2024 / SAM	12/06/2024 / SAM	V14631
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ 2-Chloroethyl vinyl ether	120524	06/10/2025	12/10/2024 / SAM	12/06/2024 / SAM	V14632
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ 2-Chloroethyl vinyl ether	120524	06/10/2025	12/10/2024 / SAM	12/06/2024 / SAM	V14633
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	07/10/2025	01/10/2025 / SAM	12/17/2024 / SAM	V14722
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml	A02110618	07/10/2025	01/10/2025 / SAM	12/17/2024 / SAM	V14723
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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #



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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0216826	08/27/2025	02/27/2025 / SAM	12/17/2024 / SAM	V14744
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	30042 / VOA Mix,500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml	A0216826	05/31/2031	01/10/2025 / SAM	12/17/2024 / SAM	V14754
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE LOTS	A0220471	07/10/2025	01/10/2025 / SAM	01/08/2025 / SAM	V14809
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE	A0220471	07/10/2025	01/10/2025 / SAM	01/08/2025 / SAM	V14814
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date /	Chemtech Lot #
Restek	30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM	A0217535	08/27/2025	02/27/2025 / SAM	01/21/2025 / SAM	V14842
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	021325	03/13/2025	02/14/2025 / SAM	02/14/2025 / SAM	V14872



Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	021325	03/13/2025	02/14/2025 / SAM	02/14/2025 / SAM	V14873

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	021325	03/13/2025	02/14/2025 / SAM	02/14/2025 / SAM	V14874

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	91980 / Acrolin Std (Min = 5)	021325	03/13/2025	02/14/2025 / SAM	02/14/2025 / SAM	V14875

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

Methanol
ULTRA RESI-ANALYZED
For Purge and Trap Analysis





Material No.: 9077-02

Batch No.: 2310762004

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

Revision No.: 0

Certificate of Analysis

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

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

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC

Ken Koehnlein

Sr. Manager, Quality Assurance

Methanol
ULTRA RESI-ANALYZED
For Purge and Trap Analysis





Material No.: 9077-02

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

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis - Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC



Methanol
ULTRA RESI-ANALYZED
For Purge and Trap Analysis





Material No.: 9077-02

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

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH3OH) (by GC, corrected for water)	≥ 99.9 %	100.0 %
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.2
Titrable Base (µeq/g)	≤ 0.10	0.03
Water (by KF, coulometric)	≤ 0.08 %	< 0.01 %
Volatile Organic Trace Analysis - Below EPA 8260B CRQL	Conforms	Conforms

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

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC



Certified Reference Material CRM



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

orl-rat 46mg/kg LD50 (Solvent Safety Info. On Attached pg.) SDS information Anthony Mahoney OSHA PEL (TWA) Pedro L. Rentas 0.1 ppm 107-02-8 No. CAS# Formulated By: Reviewed By Uncertainty Conc (ug/ml.) (+/-) (ug/ml.) Expanded 52.6 7 5011.8 Actual シャやナラ 2140 072324Q Weight(g) 0.05178 Actual Solvent(s): Weight(g) 0.05166 Water Target 5E-05 Balance Uncertainty Flask Uncertainty Uncertainty Purity 0.5 0.001 Purity 8 97 Conc (ug/mL) Nominal 10.0 5000 Refrigerate (4 °C) 103755V10F Weight(s) shown below were combined and diluted to (mL): Number Acrolein Š 021325 031325 91980 **6UTB** 5000 RW# 2 Description: Nominal Concentration (ug/mL): Part Number: Expiration Date: Recommended Storage: Lot Number: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound 1. Acrolein

DATE 021325 DATE 021325

Method; GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C. (Time 2 = 8.75 min.)
Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Podro Renias. NOTE: Due to the instability of scrolein in solutions of accolein, and any dilutions thereof, should be used immediately

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

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

27

Abundance

TIC: [BSB2]79005.D

8.93

250000

Abundance

200000

150000

00009

50000

20

40000

30000

20000

10000

37

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

Time-->0

50000

100000

2 2 8

85

65

158 169

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certified (4-1) 0.5% of the stated value, unless otherwise stated.
 All Standards, after opening sampule, should be stored with caps tight and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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

January 1, 2024

1-362-323-3500

1-800-535-5053

Z6 <

% (optional)

If in eyes, remove contacts, rinse with water

Absolute Standards Inc.

GHS/OSHA Compliant Safety Data Sheet (SDS)

Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **IDENTITY**

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

ABSOLUTE STANDARDS INC

Section II - Hazards Identification

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

Use gloves, eye protection/face sheild If on skin, wash with soap and water 0829 Causes skin and eye irritation. H312 Use in ventilated area

Signal Word: DANGER

Manufacturer's Name

P302,332

P271

If swallowed

If inhaled

General advice

In case of eye contact

In case of skin contact

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Emergency Telephone USA & CANADA

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

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

ignition. Vapours accumulate to form explosive concentrations.

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

Clean up Environmental precautions

Water

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

Section VII. HANDLING AND STORAGE

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS#: 7732-18-5

Eye protection. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment mqq 00c :AWT

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Melting Point Vapor Pressure (mm Hg) 100°C Specific Gravity (H2O = 1) Inio9 Point

Appearance and Odor

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		Vapor Density (AIR = 1)
0°C		ΑN		

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

Section X. STABILITY AND REACTIVITY

AMPossibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

biovs of slenatsM Conditions to avoid AN

Hazardous decomposition products - No data available

Section XI. TOXICOLOGICAL INFORMATION

Causes skin irritation. LD50 Dermal - Guinea pig ΑN ΑN LC50 Inhalation - Rat LD50 Oral - Rat

Eye irritation

(SU) TOO

Section XII. ECOLOGICAL INFORMATION

EC20 AN ANTC20

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

Proper shipping name: Water Not dangerous goods

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets the specifications set forth on the label. 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 APRARANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPRICATION. including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fundes. Exposure to this product may have serious adverse health effects. 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. britis document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person brine 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

> Proper shipping name: Water Not dangerous goods

Certified Reference Material CRM



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

orl-rat 46mg/kg LD50 (Solvent Safety Info. On Attached pg.) SDS information Anthony Mahoney OSHA PEL (TWA) Pedro L. Rentas 0.1 ppm 107-02-8 No. CAS# Formulated By: Reviewed By Uncertainty Conc (ug/ml.) (+/-) (ug/ml.) Expanded 52.6 7 5011.8 Actual シャやナラ 2140 072324Q Weight(g) 0.05178 Actual Solvent(s): Weight(g) 0.05166 Water Target 5E-05 Balance Uncertainty Flask Uncertainty Uncertainty Purity 0.5 0.001 Purity 8 97 Conc (ug/mL) Nominal 10.0 5000 Refrigerate (4 °C) 103755V10F Weight(s) shown below were combined and diluted to (mL): Number Acrolein Š 021325 031325 91980 **6UTB** 5000 RW# 2 Description: Nominal Concentration (ug/mL): Part Number: Expiration Date: Recommended Storage: Lot Number: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound 1. Acrolein

DATE 021325 DATE 021325

Method; GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C. (Time 2 = 8.75 min.)
Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Podro Renias. NOTE: Due to the instability of scrolein in solutions of accolein, and any dilutions thereof, should be used immediately

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

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

27

Abundance

TIC: [BSB2]79005.D

8.93

250000

Abundance

200000

150000

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50000

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40000

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20000

10000

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10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

Time-->0

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158 169

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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 Standards are certified (4-1) 0.5% of the stated value, unless otherwise stated.
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FAX: 203-281-2922 Phone: 203-281-2917

January 1, 2024

1-362-323-3500

1-800-535-5053

Z6 <

% (optional)

If in eyes, remove contacts, rinse with water

Absolute Standards Inc.

GHS/OSHA Compliant Safety Data Sheet (SDS)

Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **IDENTITY**

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

ABSOLUTE STANDARDS INC

Section II - Hazards Identification

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

Use gloves, eye protection/face sheild If on skin, wash with soap and water 0829 Causes skin and eye irritation. H312 Use in ventilated area

Signal Word: DANGER

Manufacturer's Name

P302,332

P271

If swallowed

If inhaled

General advice

In case of eye contact

In case of skin contact

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Emergency Telephone USA & CANADA

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

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

ignition. Vapours accumulate to form explosive concentrations.

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

Clean up Environmental precautions

Water

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

Section VII. HANDLING AND STORAGE

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS#: 7732-18-5

Eye protection. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment mqq 00c :AWT

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Melting Point Vapor Pressure (mm Hg) 100°C Specific Gravity (H2O = 1) Inio9 Point

Appearance and Odor

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		Vapor Density (AIR = 1)
0°C		ΑN		

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

Section X. STABILITY AND REACTIVITY

AMPossibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

biovs of slenatsM Conditions to avoid AN

Hazardous decomposition products - No data available

Section XI. TOXICOLOGICAL INFORMATION

Causes skin irritation. LD50 Dermal - Guinea pig ΑN ΑN LC50 Inhalation - Rat LD50 Oral - Rat

Eye irritation

(SU) TOO

Section XII. ECOLOGICAL INFORMATION

EC20 AN ANTC20

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

Proper shipping name: Water Not dangerous goods

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets the specifications set forth on the label. 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 APRARANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPRICATION. including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fundes. Exposure to this product may have serious adverse health effects. 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. britis document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person brine 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

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Certified Reference Material CRM



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

orl-rat 46mg/kg LD50 (Solvent Safety Info. On Attached pg.) SDS information Anthony Mahoney OSHA PEL (TWA) Pedro L. Rentas 0.1 ppm 107-02-8 No. CAS# Formulated By: Reviewed By Uncertainty Conc (ug/ml.) (+/-) (ug/ml.) Expanded 52.6 7 5011.8 Actual シャやナラ 2140 072324Q Weight(g) 0.05178 Actual Solvent(s): Weight(g) 0.05166 Water Target 5E-05 Balance Uncertainty Flask Uncertainty Uncertainty Purity 0.5 0.001 Purity 8 97 Conc (ug/mL) Nominal 10.0 5000 Refrigerate (4 °C) 103755V10F Weight(s) shown below were combined and diluted to (mL): Number Acrolein Š 021325 031325 91980 **6UTB** 5000 RW# 2 Description: Nominal Concentration (ug/mL): Part Number: Expiration Date: Recommended Storage: Lot Number: NIST Test ID#: CERTIFIED WEIGHT REPORT Compound 1. Acrolein

DATE 021325 DATE 021325

Method; GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C. (Time 2 = 8.75 min.)
Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Podro Renias. NOTE: Due to the instability of scrolein in solutions of accolein, and any dilutions thereof, should be used immediately

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

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

27

Abundance

TIC: [BSB2]79005.D

8.93

250000

Abundance

200000

150000

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10000

37

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

Time-->0

50000

100000

2 2 8

85

65

158 169

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

January 1, 2024

1-362-323-3500

1-800-535-5053

Z6 <

% (optional)

If in eyes, remove contacts, rinse with water

Absolute Standards Inc.

GHS/OSHA Compliant Safety Data Sheet (SDS)

Section I Product and Company Identification

ANALYTICAL STANDARD DISSOLVED IN WATER **IDENTITY**

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

ABSOLUTE STANDARDS INC

Section II - Hazards Identification

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

Use gloves, eye protection/face sheild If on skin, wash with soap and water 0829 Causes skin and eye irritation. H312 Use in ventilated area

Signal Word: DANGER

Manufacturer's Name

P302,332

P271

If swallowed

If inhaled

General advice

In case of eye contact

In case of skin contact

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Emergency Telephone USA & CANADA

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Section V. FIREFIGHTING MEASURES

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

Section VI. ACCIDENTAL RELEASE MEASURES

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

ignition. Vapours accumulate to form explosive concentrations.

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

Clean up Environmental precautions

Water

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

Section VII. HANDLING AND STORAGE

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS#: 7732-18-5

Eye protection. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment mqq 00c :AWT

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Melting Point Vapor Pressure (mm Hg) 100°C Specific Gravity (H2O = 1) Inio9 Point

Appearance and Odor

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		Vapor Density (AIR = 1)
0°C		ΑN		

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

Section X. STABILITY AND REACTIVITY

AMPossibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

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Hazardous decomposition products - No data available

Section XI. TOXICOLOGICAL INFORMATION

Causes skin irritation. LD50 Dermal - Guinea pig ΑN ΑN LC50 Inhalation - Rat LD50 Oral - Rat

Eye irritation

(SU) TOO

Section XII. ECOLOGICAL INFORMATION

EC20 AN ANTC20

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

Proper shipping name: Water Not dangerous goods

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

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DATE 021325 DATE 021325

Method; GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.), Temp. 2=200°C. (Time 2 = 8.75 min.)
Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Podro Renias. NOTE: Due to the instability of scrolein in solutions of accolein, and any dilutions thereof, should be used immediately

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

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Abundance

TIC: [BSB2]79005.D

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250000

Abundance

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150000

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20000

10000

37

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

Time-->0

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100000

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

January 1, 2024

1-362-323-3500

1-800-535-5053

Z6 <

% (optional)

If in eyes, remove contacts, rinse with water

Absolute Standards Inc.

GHS/OSHA Compliant Safety Data Sheet (SDS)

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Use gloves, eye protection/face sheild If on skin, wash with soap and water 0829 Causes skin and eye irritation. H312 Use in ventilated area

Signal Word: DANGER

Manufacturer's Name

P302,332

P271

If swallowed

If inhaled

General advice

In case of eye contact

In case of skin contact

Section III - Composition

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

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

Section IV. FIRST AID MEASURES

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

CAS#: 7732-18-5

P305,351,338

Emergency Telephone USA & CANADA

Wash with soap and water. Consult a physician.

Do NOT induce vomiting. Rinse mouth with water. Consult a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Section V. FIREFIGHTING MEASURES

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

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

ignition. Vapours accumulate to form explosive concentrations.

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

Clean up Environmental precautions

Water

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

Section VII. HANDLING AND STORAGE

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS#: 7732-18-5

Eye protection. Handle with gloves. Gloves must be inspected prior to use. Respiratory protection Personal protective equipment mqq 00c :AWT

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

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Melting Point Vapor Pressure (mm Hg) 100°C Specific Gravity (H2O = 1) Inio9 Point

Appearance and Odor

			Completely miscible	Solubility in Water
AN	Evaporation rate (Butyl Acetate = 1)	ΑN		Vapor Density (AIR = 1)
0°C		ΑN		

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR.

Section X. STABILITY AND REACTIVITY

AMPossibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

biovs of slenatsM Conditions to avoid AN

Hazardous decomposition products - No data available

Section XI. TOXICOLOGICAL INFORMATION

Causes skin irritation. LD50 Dermal - Guinea pig ΑN ΑN LC50 Inhalation - Rat LD50 Oral - Rat

Eye irritation

(SU) TOO

Section XII. ECOLOGICAL INFORMATION

EC20 AN ANTC20

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

Proper shipping name: Water Not dangerous goods

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical meets the specifications set forth on the label. 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 APRARANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPRICATION. including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fundes. Exposure to this product may have serious adverse health effects. 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. britis document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person brine 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

> Proper shipping name: Water Not dangerous goods

Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

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

69 components

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

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

100.0 0.021 15-11-11

5E-05 Balance Uncertainty

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

Weight(s) shown below were combine	ed and dilute	ad to (mL):	100.	0 0.02	Flank Undertail	etw								-1-	T GOTO L. TRUTTERS	
Compound	(RM#)	Lot	Da.	Initial	initial	Nominal Conc (µg/mL)	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information ent Safety info. On Atta	ched pg.)
	T BEE THERETON	R TEATRIFIE	Pilited	e vol. (m)	L) Conc.(ug/ms.)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mt.)	Weight(g)	Weight(g)	Canc (µg/mL) (+/-) (µg/mL	CAS#	OSHA PEL (TWA)	LD5
Acetonitrile	(0324)	021644	NA	NA	NA.	2000	99.99	0.2	NA	0.20007	0.20020	2004.2			Delta Control Control Control Control	
Allyl chloride (3-Chloropropene)	(0325)	102396	NA		NA	2000	99	0.2	NA	0.20207	0.20020	2001.3	8.1	75-05-8 107-05-1	49 ppm (70mg/m3/6H)	orl-rat 2460
Carbon disulphide	(0060)	MKCR858	1 NA	NA	NA	2000	99,99	0.2	NA	0.20007	0.20023	2001.6	8.1	75-15-0	1 ppm (3mg/m3/8H)	orl-rat 700
cis-1,4-Dichloro-2-butene	(1198)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058	0.21069	2001.1	8,5	1478-11-5	4 ppm (12mg/m3) (skin) N/A	ori-rat 1200
trans-1,4-Dichloro-2-butene	(0486)	MKBP6041		NA	NA	2000	96.5	0.2	NA	0.20731	0.20748	2001.7	8.4	110-57-6	N/A	N/A N/A
Diethyl ether	(0153)	1K18CAS00		NA	NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	80-29-7	N/A	N/A
Ethyl methacrylate	(0381)	06126PX	NA.	NA	NA	2000	99	0.2	NA .	0.20207	0.20230	2002.3	8.2	97-63-2	NA	orl-ret 1480
lodomethane	(0489)	SH8F8718\		NA.	NA.	2000	99.5	0.2	NA	0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mg/m3/8H)(skin)	
2-Methyl-1-propanol Methacrylonitrile	(0445)	15241EB		NA	NA	2000	99.5	0.2	NA.	0.20106	0.20120	2001.4	8.1	78-83-1	50 ppm (150mg/m3/8H)	ori-rat 2460
Methyl acrylate	(0442)	00427ET	NA	NA	NA	2000	99	0.2	NA .	0.20207	0.20221	2001.4	8.2	126-98-7	1 ppm (3mg/m3/8H)(skin)	orl-rat 120r
Methyl methacrylate		SHBK0679 MKBW5137		NA NA	NA NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	Orl-ret 277s
Nitrobenzene	(0228)	01213TV	NA.	NA.	NA NA	2000	99.9	0.2	NA	0.20025	0.20041	2001.6	8.1	80-62-6	100 ppm (410mg/m/3/8H)	ori-rat 7872
2-Nilropropane	(0461)	14002JX	NA	NA	NA.	2000	99	0.2	NA NA	0.20207	0.20220	2001.3	8.2	96-95-3	1 ppm (5mg/m3/8H)(skin)	ori-rat 780n
Pentachloroethane	(0450)	HGA01	NA	NA	NA.	2000	98	0.2	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35/ng/m3/6H)	orl-rat 720r
1,1,2-Trichiorotrificoroethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA.	0.20413	0.20430	2001.6	8.3	76-01-7	N/A	N/A
Bromodichloromethane	35171	101623	0.05	5.00	40001.7	2000	NA	NA.	0.017	NA NA	NA NA	2001.8 1999.6	8,2 22.9	76-13-1	1000 ppm (7600mg/m3/6H)	
Dibromochloromethane	35171	101823	0.05	6.00	40002.1	2000	NA	NA	0.017	NA NA	NA.	1999.6	23.0	75-27-4	N/A	ori-rat 916r
cis-1,2-Dichloroethene	35171	101823	0.05	5.00	40003.1	2000	NA	NA	0.017	NA.	NA NA	1999.7	22.9	124-48-1	N/A	orl-rat 649r
rans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA	NA	0.017	NA.	NA NA	1999.8	23.0	156-60-5	N/A	N/A
Methylene chlorida	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA.	1999.6	22,9	75-09-2		ort-rat 1235
1,1-Dichloroethene	32251	102023	0.10	10.00	20001.6	2000	NA	NA	0.042	NA	NA	1999.7	20.4	75-35-4	500 ppm 1 ppm (4mg/m3/8H)	ori-rat 820r ori-rat 200r
Bromeform	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (skin)	ori-rat 200r
arbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	58-23-5	2 ppm (12.6mg/m3/8H)	ori-rat 2350
hioratom	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA	2001.9	20.5	67-68-3	50 ppm (240mg/m3) (CL)	orf-ret 908r
Abromemethane ,1-Dichloroethene	95321	020724	0.10	10.00	20002.9	2000	NA	NA .	0.042	NA	NA	1999.8	20.5	74-95-3	N/A	orl-ret 106r
,2-Dichlaropropane	95321	020724	0.10	10.00	20003.4	2000	NA	NA.	0.042	NA	NA	1999.8	20.5	75-34-3	100 ppm	ori-rat 725r
akachloroethene	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	594-20-7	N/A	N/A
1,1-Trichloroethane	95321 95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA	NA	2019.6	20.6	127-18-4	25 ppm (170mg/m3/8H)(final)	orl-rat 2629
2-Dibromo-3-chioropropane	35161	112322	0.10	10.00	20003.0	2000	NA	NA	0.042	NA NA	NA .	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/8H)	orl-ret 10300
2-Dibromoethane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.017	NA	NA NA	2000.3	22.9	96-12-8	0.001 ppm	ori-rat 170n
2-Dichloroethane	35161	112322	0.08	5.00	40024.8 40018.0	2000	NA	NA NA	0.017	NA	NA	2000.7	22.9	106-93-4	20 ppm (8H)	orf-rat 108n
,2-Dichloropropane	35161	112322	0.05	5.00	40051.0	2000	NA NA	NA NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670m
3-Dichloropropane	35161	112322	0.05	5.00	40005.9	2000	NA	NA.	0.017	NA NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/9H)	ori-rat 1947s
1-Dichloropropene	35161	112322	0.05	5.00	40012.1	2000	NA	NA NA	0.017	NA NA	NA NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600
s-1,3-Dichloropropena	35161	112322	0.05	5.00	40010.0	2000	NA	NA	0.017	NA	NA NA	2000.1		583-58-8 0061-01-5	N/A	N/A
ans-1,3-Dichloropropene	35161	112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4		0061-02-6	N/A	N/A
exachloro-1,3-butadiene	35181	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7	87-68-3	N/A 0.02 ppm (0.24mg/m3/6H)	N/A
1,1,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1	22.9	630-20-6	N/A	ori-rat 62m
1,2,2-Tetrachloroethane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	79-34-5	5 ppm (35mg/m3/9H)(aldn)	orl-rat 670m
1,2-Trichloroethane	35161	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	ori-rat 836m
ichloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/9H)	orl-mus 2402
2,3-Trichloropropane Inzene	35181	112322	0.05	5.00	40007,5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4	10 ppm (60mg/m3/8H)	ori-rat 149.6
omobenzene	35162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA .	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894r
Butyl benzene	36162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-86-1	N/A	orl-rat 2699
nyi benzene	35162 35162	050823	0.05	5.00	40003.8	2000	NA	NA	0.017	NA	NA	1999.7		104-51-8	N/A	N/A
sopropyl toluene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		100-41-4	190 ppm (435mg/m3/8H)	orl-rat>2000
phthalene	35162	050823	0.05	5.00	40005.8 40006.2	2000	NA	NA NA	0.017	NA	NA NA	1999,8	22.9	99-87-6	N/A	orl-rat 4750n
rrene	35162	050823	0.05	5.00	40004.8		NA NA	NA NA	0.017	NA	NA.	1009.8	22.9	91-20-3	10 ppm (50mg/m3/8H)	orl-rad 490m
uene	35162	050823	0.05	5.00	40006.2		NA	NA.	0.017	NA NA	NA	1999.7		100-42-5	100 ppm	orl-rat 5000m
,3-Trichlorobenzene	35162	050823	0.05	5.00	40003.1		NA	NA	0.017	NA NA	NA NA	1999.8		108-88-3	200 ppm	orl-rat 5000m
,4-Trichlorobenzene		050823	0.05	5.00	40006.8		NA	NA	0.017	NA	NA NA	1999.7		87-61-6	N/A	lpr-mus 1390r
,4-Trimethylbenzene	35162	050823	0.05	5.00	40001.8		NA	NA	0.017	NA NA	NA.	1999.6		95-63-6	5 ppm (CL) (40mg/m3)	ori-rat 750m
5-Trimethylbenzene	35162	050823	0.05	5.00	40006.7		NA	NA	0.017	NA	NA NA	1999.6		06-67-8	N/A N/A	ori-rat fig/
Cylene		050823	0.05		40005.8		NA	NA	0.017	NA	NA	1999.8		08-38-3	100 ppm (435mg/m3/8H)	orl-rat 5000m
	35163	101923	0.05		40001.2		NA	NA	0.017	NA	NA	1999.6		98-06-6	N/A	orl-rat 5g/
Butyl benzene		404000	0.05	5.00	40002.4	2000	NA	NA	0.017	NA	NA	1999.6		35-98-8	N/A	
Butyl benzene Butyl benzene	35163	101923			40003.8	2000	NA	NA	0.017	NA	NA	1999.7		08-90-7	75 ppm (350mg/m3/8H)	pri-rat 2240m
Butyl benzene Butyl benzene orobenzene	35163 35163	101923	0.05					A.A.			NA	1999.5			Printer to see the little state of	
Butyl benzene Butyl benzene orobenzene hlorotoluene	35163 35163 35163	101923 101923	0.05	5.00	40000.3		NA	NA	0.017	NA	TUP		66.0	95-49-8	50 ppm (250ma/m3/8H)	
-Butyl benzene -Butyl benzene orobenzene hkorotoluene hkorotoluene	35163 35163 35163 35163	101923 101923 101923	0.05 0.05	5.00 5.00	40000.3 40003.3	2000	NA NA	NA NA	0.017	NA NA	NA NA	1999.7		95-49-8 06-43-4	50 ppm (250mg/m3/8H) N/A	
-Butyl benzene -Butyl benzene tonbenzene -Bhlorotoluene Historotoluene -Dichlorobenzene	35163 35163 35163 35163 35163	101923 101923 101923 101923	0.05 0.05 0.05	5.00 5.00 5.00	40000.3 40003.3 40003.8	2000 2000	NA NA	NA NA					22.9 1		N/A	orl-rat 2100m
-Butyl benzene -Butyl benzene orobenzene -hiorotoluene -hiorotoluene -bionobenzene -Dichlorobenzene	35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40000.3 40003.3 40003.8 40001.7	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA	NA	1999.7	22.9 1 22.9	06-43-4	N/A 50 ppm (300mg/m3) (CL)	orl-rat 2100m orl-rat 500mg
t-Butyl benzeneButyl benzene lorabenzene >>korotokuene >NorotokueneDichlorobenzeneDichlorobenzeneDichlorobenzene	35163 35163 35163 35163 35163 35163 35163	101923 101928 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.08	5.00 5.00 5.00 5.00 5.00	40000.3 40003.3 40003.8 40001.7 40001.8	2000 2000 2000 2000	NA NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA	1999.7 1999.7	22.9 1 22.9 23.0 5	06-43-4 95-50-1	N/A 50 ppm (300mg/m3) (CL)	orl-rat 3900m orl-rat 2100m orl-rat 500mg orl-rat 500mg orl-rat 500mg
-Butyl benzene -Butyl benzene orobenzene hidrotoluene bidrotoluene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene -Dichlorobenzene	35163 35163 35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.08	5.00 5.00 5.00 5.00 5.00 5.00	40000.3 40003.3 40003.8 40001.7 40001.8 40000.8	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA NA	0.017 0.017 0.017 0.017 0.017	NA NA	NA NA NA	1999.7 1999.7 1999.6	22.9 1 22.9 2 23.0 5 22.9 1	06-43-4 95-50-1 41-73-1	N/A 50 ppm (300mg/m3) (CL) N/A 78 ppm (450mg/m3/8H)	orl-rat 2100m orl-rat 500mg orl-rat 500mg orl-rat 500mg
l-Butyl benzene Dutyl benzene londbenzene Chlorotoluene Phiorotoluene Dichlorobenzene -Dichlorobenzene -Dichlorobenzene propylbenzene ropylbenzene	35163 35163 35163 35163 35163 35163 35163 35163 35163	101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.08 0.08	5.00 5.00 5.00 5.00 5.00 5.00 5.00	40000.3 40003.3 40003.8 40001.7 40001.8	2000 2000 2000 2000 1 2000 2000 1	NA NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA NA	1999.7 1999.6 1999.6	22.9 1 22.9 2 23.0 5 22.9 1 22.9 1	06-43-4 95-50-1 41-73-1 06-48-7	N/A 50 ppm (300mg/m3) (CL) N/A 76 ppm (450mg/m3/8H) 50 ppm (245mg/m3/8H)	orl-rat 2100mg

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

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

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

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

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

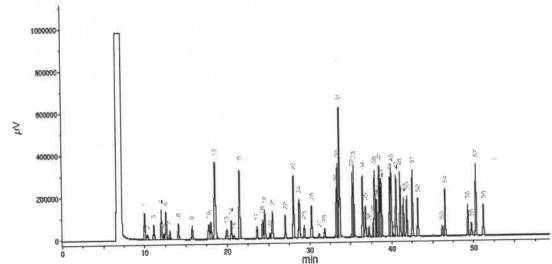
ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

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

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

Comments

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



Penk #	Name	(min.)
1	Sther	9.97
2	1.1.2-Trichtoro-1,2,2-trifluoroetherm	10.33
3	1,1-Dichloroethene	11.10
4	Acetonitrile	12,00
5	Indomethane	12.31
6	Allyl chloride	12.55
9	Carbon disulide/Nathylene chloride	13,04
	trans-1,2-Dichlomethens	14.07
9	1.1-Dichloroethane	15.74
10	2,2-Dictrierograpane	17.70
3.3.	cis-1,2-Dichieroethene	19.60
52	Hethacrylonitrite/Methyl acrylete/Chloroform	10.45
13	Isobutanol/1,1,1-Trichloroethane	19.91
14	1,1-Dichtoropropené	20.46
15	Carbon tetrachloride	20.79
16	@enzene/1,2-Dicniproethane	21.49
17	Trichloroethene	21.58
10	1,2-Dichloropropene	24.28
19	Methyl methocrylate	24,52
20	Bromodichloromethank	25.13
21	Dibromomethane/2-Mitropropiese	25.46
22	els-1,3-Dichloropropens	27.02
23	Torusine	26.05
24	Ethyl methacryfets/trans-1,3-Dichloropropens	28.73
25	L,1,2-Trichloroet/Ans	29.34
26	figtrachloroethene/1,3-Dichloropropane	20.24
27	Dibramochiaromettune	31,16
28	1,2-Dilecompethene	32.84
28	Chlorobenzenik	33.26
30	Ethyphensene/1,1,1,2-fetractionoethave	23.40
31	m-Xytene/p-Xytene	33.86
32	a-Hylene	35.22
33	Styrene	35.30
34	Escarepyi benzane/Bremefank	36,48
35	crs-1,4-Dichlord-2-buttens	36.00
26	1,1,2,2-Tetrachieroethiene	37.23
37	1,2,3-Yrichipropane	37.77
211	п-Ризрубранавия	37.92
39	trans-1,n-Dichloro-3-busens	38.05
40	Beamabanzen4	38.14
-61	1,3,5-Trymethy/benzers	30.62
42	2-Chieroselvenik	38,77
43	4-Chlorotolueria	39.76
44	tert-Busylbenzene	39.91
45	1,2,4-Trimethylbenzene	40.17
46	Pertactionsettions	40.57
47	sec-Butyldenzena	41.02
48	p-Isoprocykolukne	41.42
49	1,3-Dichigrationation	45.83
50	1,4-Dictiorobenzene	42.52
52	n-Butylbenzene 1.2-Dichlorobenzene	43.38
52	1,2-Dibramo-3-chloropropane	46.12
54	Nitrobenzane	46.48
55	1,2,4-Trichtorobenzaris	49,26
56	Herachiprobutadina	49.72
52	Naphthatene	\$0.26
50	1_2_3-Trichlarobenzene	\$1.16
54	while a record of the annual control	

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC.

Emergency Telephone USA & CANADA

1-800-535-5053

Address

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

1-352-323-3500 January 1, 2023

Section II - Hazards Identification

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

H225 H370 **Highly Flammable Liquid and Vapor**

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

P271

Cause damage to organs Use in ventilated area

H351 P280

Suspected of causing cancer

P302.332

If on skin, wash with soap and water

P305,351,338

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

Eye protection.





Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

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

If swallowed

If inhaled

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media

Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation

Storage Conditions

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

Methanol-SDS.xls

Page 1 of 2

Printed: 2/19/24

Absolute Standards Inc.

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

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

Solubility in Water

COMPLETE

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

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

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

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm

LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed.

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

LC50

15,400 mg/l - 96 h

EC50

24,500.00 mg/l - 48 h

EC100

10,000.00 mg/l - 24 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

IATA

Proper shipping name:

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: 11

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

Absolute Standards, Inc.

800-368-1131 www.absolutestandards.com



Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

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

69 components

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

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

100.0 0.021 15-11-11

5E-05 Balance Uncertainty

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

Weight(s) shown below were combine	ed and dilute	ad to (mL):	100.	0 0.02	1 Flask Uncertain	etw									T SONO EL TRUTTOS	
Compound	(RMII) Part Numbe	Lat	De.	fritte	l Irillial	Nominal Conc (µg/mL)	Purity	Purity	Uncertainty	Target	Actual	Actual	Expanded Uncertainty		SDS information ent Safety info. On Atta	ched pg.)
The state of the s	P det Petiting	R THATTAPET	Pilitato	e voi. (m	c) Conc.(ug/ms.)	Conc (µg/mL)	(%)	Uncertainty	Pipette (mt.)	Weight(g)	Weight(g)	Canc (µg/mL) (+/-) (µg/mL) CAS#	OSHA PEL (TWA)	L050
Acetonitrile	(0324)	021644	NA	NA	NA.	2000	99.99	0.2	NA	0.20007	0.00000	2004.0				
Allyl chloride (3-Chloropropene)	(0325)	102396	NA		NA.	2000	99	0.2	NA	0.20207	0.20020	2001.3	8.1	75-05-8	40 ppm (70mg/m3/6H)	orl-rat 2460
Carbon disulphide	(0060)	MKCR8581			NA	2000	99,99	0.2	NA	0.20207	0.20221	2001.4	8.2	107-05-1	1 ppm (3mg/m3/8H)	cri-rat 700r
cis-1,4-Dichloro-2-butene	(1198)	14718EF	NA	NA	NA	2000	95	0.2	NA	0.21058			8.1	75-15-0	4 ppm (12mg/m3) (skin)	ori-rat 1200
trans-1,4-Dichloro-2-butene	(0486)	MKBP8041\		NA	NA	2000	96.5	0.2	NA.	0.20731	0.21069	2001.1	8,5	1478-11-5		N/A
Diethyl ether		1K18CAS000		NA	NA	2000	99.9	0.2	NA.	0.20025		2001.7	8.4	110-57-6	N/A	NA
Ethyl methacrylate	(0381)	06126PX	NA	NA	NA	2000	99	0.2	NA NA		0.20040	2001.5	8.1	80-29-7	NA	N/A
lodomethane	(0489)	SH8F8718V		NA	NA.	2000	99.5	0.2	NA NA	0.20207	0.20230	2002.3	8.2	97-63-2	N/A	orf-ret 14800
2-Methyl-1-propanol	(0445)	15241EB	NA	NA	NA.	2000				0.20106	0.20121	2001.5	8.2	74-88-4	5 ppm(28mg/m3/8H)(sidn)	
Methacrylonitrile	(0442)	00427ET	NA	NA.	NA.	2000	99.5	0.2	NA	0.20106	0.20120	2001.4	8.1	78-83-1	60 ppm (150mg/m3/8H)	orl-rat 2480r
Methyl acrylate	(1075)	SHBI00679		NA			99	0.2	NA	0.20207	0.20221	2001.4	8.2	126-98-7	1 ppm (3mg/m3/8H)(skin)	orl-rat 120v
Methyl methacrylate		MKBW5137\			NA NA	2000	99.9	0.2	NA	0.20025	0.20040	2001.5	8.1	96-33-3	10 ppm(35mg/m3/8H)(sldn)	ori-ret 277m
Nitrobenzene	(0228)			NA	NA NA	2000	99.9	0.2	NA NA	0.20025	0.20041	2001.6	8.1	80-62-6	100 ppm (410mg/m3/8H)	ori-rat 7872
2-Nitropropane	(0461)	01213TV	NA	NA.	NA NA	2000	99	0.2	NA NA	0.20207	0.20220	2001.3	8.2	96-95-3	1 ppm (5mg/m3/8H)(skin)	orl-rat 780m
Pentactiloroethane		14002JX	NA	NA	NA NA	2000	97.3	9.0	NA NA	0.20560	0.20577	2001.6	6.3	79-46-9	10 ppm (35mg/m3/8H)	orl-red 720m
1,1,2-Trichlorotrisuoroethane	(0450)	HGA01	NA	NA	NA	2000	98	0,2	NA NA	0.20413	0.20430	2001.6	8.3	76-01-7	NVA	N/A
Bromodichioromethane	(0474)	18930	NA	NA	NA	2000	99	0.2	NA.	0.20207	0.20225	2001.8	8,2	76-13-1	1000 ppm (7600mg/m3/8H)	orl-rat 43g
	35171	101623	0.05	5.00	40001.7	2000	NA	NA	0.017	NA	NA	1999.6	22.9	75-27-4	N/A	ori-ret 916m
Dibromochioromethane	35171	101823	0.05	6.00	40002.1	2000	NA	NA	0.017	NA	NA	1999.6	23.0	124-48-1	NA	orl-rat 640m
Sis-1,2-Dichloroethene	35171	101823	0.05	5.00	40003,1	2000	NA	NA	0.017	NA	NA	1999.7	22.9	158-59-2	NA	N/A
rans-1,2-Dichloroethene	35171	101623	0.05	5.00	40002.4	2000	NA.	NA	0.017	NA	NA	1999.8	23.0	156-60-5	N/A	ort-rail 1235
Methylene chloride	35171	101623	0.05	5.00	40002.8	2000	NA	NA	0.017	NA	NA	1999.6	22,9	75-09-2	500 ppm	ori-rat 820m
,1-Dichloroethene	32251	102023	0.10	10,00	20001.6	2000	NA	NA	0.042	NA	NA	1999.7	20.4	75-35-4	1 ppm (4mg/m3/8H)	ori-rat soun
Promeform	95321	020724	0.10	10.00	20003.2	2000	NA	NA	0.042	NA	NA	1999.8	20.5	75-25-2	0.5 ppm (5mg/m3) (sldn)	ori-rat 200n
arbon tetrachloride	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA	1999.8	20.4	56-23-5	The state of the s	
hioroform	95321	020724	0.10	10.00	20024.0	2000	NA	NA	0.042	NA	NA.	2001.9	20.5	67-68-3	2 ppm (12.6mg/m3/8H)	ori-rat 2350
Dibromomethana	95321	020724	0.10	10.00	20002.9	2000	NA	NA.	0.042	NA	NA NA	1999.8	20.5		50 ppm (240mg/m3) (CL)	orf-ret 908m
,1-Dichloroethane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA.	NA.	1999.8		74-95-3	N/A	orl-ret 106m
,2-Dichloropropane	95321	020724	0.10	10.00	20003.4	2000	NA	NA	0.042	NA	NA NA		20.5	75-34-3	100 ppm	orl-rat 725m
elvachloroethene	95321	020724	0.10	10.00	20201.1	2000	NA	NA	0.042	NA.		1999.8	20.4	594-20-7	N/A	NA
,1,1-Trichloroethane	95321	020724	0.10	10.00	20003.0	2000	NA	NA			NA	2019.6	20.6	127-18-4	26 ppm (170mg/m3/8H)(final)	
2-Dibromo-3-chloropropane	35161	112322	0.05	5.00	40016.5	2000	NA	NA	0.042	NA	NA .	1999.8	20.5	71-55-6	350 ppm (1900mg/m3/8H)	orl-rat 10300
2-Dibromoethane	35161	112322	0.05	5.00	40024.8	2000			0.017	NA	NA	2000.3	22.9	96-12-8	0.001 ppm	ori-nat 170m
2-Dichlorgethane	35161	112322	0.08	5.00	40018.0	2000	NA	NA	0.017	NA	NA	2000.7	22.9	106-93-4	20 ppm (8H)	orf-rat 108m
2-Dichloropropene	35161	112322	0.05	5.00			NA	NA	0.017	NA	NA	2000.4	22.9	107-08-2	50 ppm (8H)	orl-rat 670m
3-Dichloropropane	35161	112322	0.05		40051.0	2000	NA	NA	0.017	NA	NA	2002.0	22.9	78-87-5	75 ppm (350mg/m3/8H)	ori-rat 1947m
1-Dichloropropene	35161	112322	0.05	5.00	40005.9	2000	NA	NA	0.017	NA	NA	1999.8	22.9	142-28-9	N/A	Unr-mus 3600
8-1,3-Dichioropropena	35161	112322	0.05	5.00	40012.1	2000	NA	NA	0.017	NA	NA	2000.1	29.7	563-56-6	NA	NA
ans-1,3-Dichloropropene	35161				40010.0	2000	NA	NA	0.017	NA	NA	2000.0	23.0	10061-01-5	N/A	N/A
exachloro-1,3-butadiene		112322	0.05	5.00	40017.6	2000	NA	NA	0.017	NA	NA	2000.4	23.0 1	10061-02-8	N/A	N/A
	35181	112322	0.05	5.00	40021.9	2000	NA	NA	0.017	NA	NA	2000.6	29.7	87-68-3	0.02 ppm (0.24mg/m3/8H)	ori-rat 62mg
1,1,2-Tetrachloroethane	35161	112322	0.05	5.00	40011.9	2000	NA	NA	0.017	NA	NA	2000.1	22.9	630-20-6	N/A	orl-rad 670m
1.2.2-Tetrachloroethane	35161	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	79-34-5	5 ppm (35mg/m3/9H)(aldri)	orl-rat 800m
1,2-Trichloroethane	35161	112322	0.05	5.00	40006.6	2000	NA	NA	0.017	NA	NA	1999.8	23.0	79-00-5	10 ppm (46mg/m3/8H)(skin)	ori-rat 836m
ichloroethene	35161	112322	0.05	5.00	40029.0	2000	NA	NA	0.017	NA	NA	2000.9	22.9	79-01-6	50 ppm (270mg/m3/9H)	orl-mus 2402r
2,3-Trichloropropane	35181	112322	0.05	5.00	40007.5	2000	NA	NA	0.017	NA	NA	1999.9	22.9	96-18-4	10 ppm (80mg/m3/8H)	ori-rat 149.6r
nzene	36162	050823	0.05	5.00	40005.0	2000	NA	NA	0.017	NA	NA	1999.7	22.9	71-43-2	1 ppm	orl-rat 4894n
omobenzene	36162	050823	0.05	5.00	40006.9	2000	NA	NA	0.017	NA	NA	1999.8		108-86-1	N/A	orl-rat 2699m
Butyl benzene	35162	060823	0.05	5.00	40003.B	2000	NA	NA	0.017	NA	NA	1999.7		104-51-8	N/A	
hyl benzene	35162	050823	0.05	5.00	40004.8	2000	NA	NA	0.017	NA	NA	1999.7		100-41-4	190 ppm (435mg/m3/8H)	N/A
sopropyl toluene	35162	050823	0.05	5.00	40005.8	2000	NA	NA	0.017	NA	NA.	1999.8	22.9	99-87-6		orl-rat>2000r
phihalene	35162	050823	0.05	5.00	40006.2		NA	NA	0.017	NA	NA.	1999.8	22.9		N/A	orl-rat 4750m
rrene	35162	050823	0.05	5.00	40004.8		NA	NA	0.017	NA	NA NA	1999.7		91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490m
uene	35162	050823	0.05	5.00	40006.2		NA	NA	0.017	NA	NA.			100-42-5	100 ppm	orl-rat 5000m
	35162	050823	0.05	5.00	40003.1		NA	NA	0.017			1999.8		108-88-3	200 ppm	orl-rat 5000m
3-Trichlorobenzene		050823	0.05	5.00	40006.8		NA	NA NA	0.017	NA NA	NA NA	1999.7		87-61-6	N/A	lor-mus 1390r
			Jan Will	5.00	40001.6		NA NA	NA NA		NA	NA	1999.8		120-82-1	5 ppm (CL) (40mg/m3)	ori-rat 750m
,4-Trichlorobenzene	35162		0.05			5000			0.017	NA NA	NA NA	1999.6		95-63-6	N/A	ort-rat 5g/
,4-Trichlorobenzene ,4-Trimethylbenzene	35162 35162	050823	0.05			2000										
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene	35162 35162 35162	050823 050823	0.05	5.00	40006.7		NA	NA	0.017			1999.6		108-67-8	N/A	OR-198 5000m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (ylene	35162 35162 35162 35162	050823 050823 050823	0.05 0.05	5.00	40006.7 40005.8	2000	NA	NA	0.017	NA	NA	1999.8	22.9	108-38-3	N/A 100 ppm (435mg/m3/8H)	
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Kylene -Butyl benzene	35162 35162 35162 35162 35163	050823 050823 050823 101923	0.05 0.05 0.05	5.00 5.00 5.00	40006.7 40005.8 40001.2	2000	NA NA	NA NA	0.017 0.017	NA NA	NA NA	1999.6 1999.6	22.9 22.9	108-38-3 98-06-6		
A-Trichlorobenzene 4-Trimethylbenzene 5-Trimethylbenzene (ylene -Butyl benzene -Butyl benzene	35162 35162 35162 35162 35163 35163	050823 050823 050823 101923 101923	0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00	40008.7 40005.8 40001.2 40002.4	2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.8	22.9 22.9	108-38-3	100 ppm (435mg/m3/8H)	orl-rat 5g/
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (Sylene -Butyl benzene -Butyl benzene orobenzene	35162 35162 35162 35162 35163 35163 35163	050823 050823 050823 101923 101923 101923	0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA	NA NA	1999.6 1999.6	22.9 22.9 22.9	108-38-3 98-06-6	100 ppm (435mg/m3/8H) N/A N/A	ori-rat 5g/k N/A ori-rat 2240m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene (Sylene -Butyl benzene -Butyl benzene orobenzene hlorotoluene	35162 35162 35162 35162 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA NA	0.017 0.017 0.017	NA NA NA	NA NA NA	1999.8 1999.6 1999.6	22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H)	orl-rat 5g/k N/A orl-rat 2240m orl-rat 2290m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Kyleme -Butyl benzene -Butyl benzene otobenzene hiorotoluene	35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8	2000 2000 2000 2000 2000	NA NA NA	NA NA NA	0.017 0.017 0.017 0.017	NA NA NA	NA NA NA	1999.6 1999.6 1999.6 1999.7 1999.5	22.9 1 22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8	100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H)	orl-rat 5gA N/A orl-rat 2240m orl-rat 2290m orl-rat 3900m
,4-Trichlorobenzene ,4-Trimethylbenzene ,5-Trimethylbenzene Sylene -Butyl benzene -Butyl benzene -Butyl benzene orobenzene hiorotoluene hiorotoluene	35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3	2000 2000 2000 2000 2000 2000 2000	NA NA NA NA	NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA	NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7	22.9 22.9 22.9 22.9 22.9 22.9	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 108-43-4	100 ppm (435mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 50 ppm (250mg/m3/8H) N/A	orl-rat 5gA NVA orl-rat 2240m orl-rat 2290m orl-rat 2100m
,4-Trichlorobenzene ,4-Trinethylbenzene ,5-Trimethylbenzene // Strimethylbenzene	35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3	2000 2000 2000 2000 2000 2000 2000	NA NA NA NA NA	NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA	NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.7 1999.7	22.9 1 22.9 1 22.9 1 22.9 1 22.9 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (350mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3/8H) (CL)	orl-rat 5gA NVA orl-rat 2240m orl-rat 2290m orl-rat 2100m orl-rat 500mg
-Dichlorobenzene -Dichlorobenzene	35162 35162 35162 35162 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA	NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA	NA NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 2 22.9 1 22.9 2 22.9 5	108-38-3 98-06-8 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1	100 ppm (455mg/m3/8H) N/A N/A N/A 75 ppm (550mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A	ori-rat 5g/k N/A ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 500mg ori-rat 500mg
,4-Trichlorobenzene ,4-Trinethylbenzene ,5-Trimethylbenzene E,5-Trimethylbenzene Xylene -Butyl benzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.6 40001.7 40001.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 1 22.9 2 22.9 1 22.9 2 23.0 5 22.8 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1 106-48-7	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (300mg/m3) (CL) N/A 75 ppm (450mg/m3/8H)	ori-rat 5g/k N/A ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 2100m ori-rat 500mg ipr-mus 1062m ori-rat 500mg
2,4-Trichlorobenzene (,4-Trimethylbenzene (,4-Trimethylbenzene (,5-Trimethylbenzene Edutyl benzene -Butyl benzene -Butyl benzene -Butyl benzene -Botolouene -Bibrorolouene -Bibrorolouene -Dichlorobenzene -Dichlorobenzene	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40096.7 40005.8 40001.2 40002.4 40003.8 40000.3 40000.3 400003.8 40001.7 40001.8 40000.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.6 1999.6 1999.6	22.9 1 22.9 2 22.9 1 22.9 2 22.9 2 22.9 2 22.9 2 22.9 2 22.9 1 22.9 2	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 96-50-1 141-73-1 106-46-7 98-62-8	100 ppm (455mg/m3/8H) NVA NVA 75 ppm (350mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (250mg/m3/8H) 80 ppm (300mg/m3) (CL) NVA 76 ppm (450mg/m3/8H) 80 ppm (2450mg/m3/8H)	ori-rat 2240mg ori-rat 2290mg ori-rat 3900mg ori-rat 2100mg ori-rat 500mg ori-rat 500mg ori-rat 500mg ori-rat 1400mg
2,4-Trichlorobenzene 4,4-Trinethylbenzene 5,5-Trimethylbenzene Euryl benzene -Butyl benzene -Butyl benzene -Butyl benzene -Botobenzene -Britorobenzene -Bichlorobenzene -Bichlorobenzene -Dichlorobenzene -Dichlorobenzene -	35162 35162 35162 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163 35163	050823 050823 050823 101923 101923 101923 101923 101923 101923 101923 101923 101923 101923 101923	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	40006.7 40005.8 40001.2 40002.4 40003.8 40000.3 40003.3 40003.6 40001.7 40001.8	2000 2000 2000 2000 2000 2000 2000 200	NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA	0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017 0.017	NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	1999.8 1999.6 1999.6 1999.7 1999.5 1999.7 1999.7 1999.6	22.9 1 22.9 1 22.9 1 22.9 1 22.9 22.9 1 22.9 22.9 1 22.9 23.0 5 22.8 1 22.9 1	108-38-3 98-06-6 135-98-8 108-90-7 95-49-8 106-43-4 95-50-1 141-73-1 106-48-7	100 ppm (455mg/m3/8H) N/A N/A 75 ppm (355mg/m3/8H) 80 ppm (250mg/m3/8H) N/A 50 ppm (350mg/m3/8H) N/A 75 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H) S0 ppm (450mg/m3/8H)	ori-rat 5g/le NVA ori-rat 2240m ori-rat 2290m ori-rat 3900m ori-rat 2100m ori-rat 500mg ori-rat 500mg ori-rat 500mg

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

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

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

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

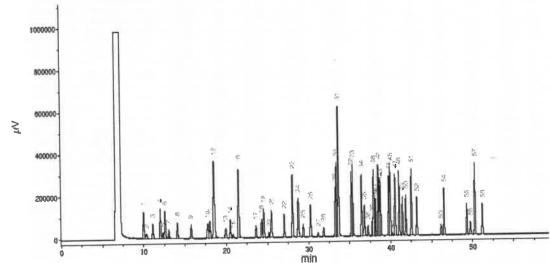
* Uncertainty Reference: Taylor, RA, and Raylor, C.E., "Calcibrations for Evaluating and Expressing the Uncertainty of NIST Measurement Result, NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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

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

Comments

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



Penk #	Name	(min.)
1	Ether	9.97
2	1,1,2-Trichtoro-1,2,2-trifluoroetherm	10.33
3	1.1-Dichloroethene	11.10
4	Acetonitrile	12.00
	Indometrane	12.31
6	Allyl chloride	12.56
7	Carbon disulfide/Nathylene chloride	13.04
	trans-1,2-Dichlomethens	14.07
	1.1-Dichloroethane	15.74
9		17.74
10	2,2-Dichleropropase	18.60
3.3.	cis-1,2-Dichierosthene MethacrylonityRe/Methyl acrylete/Chloroform	10.49
12		19.91
13	Isobutanol/1,1,1-Trichloroethane	20.46
14	1,1-Dichtoropropens	20.79
15	Carbon tetrathloride	21.48
16	@enzene/1,2-Dicniproethane	
17	Trichlaraethene	33.58
19	1,2-Dichloropropene	24.28
1.9	Methyl methocrylate	24,52
20	Bromodenloromethana	25.13
21	Dibromomethane/2-Nitropropene	25.46
22	els-1,3-Dichloropropens	27.02
23	Toruene	26.05
24	Ethyl methacryfets/frame-1,3-Dichleropropens	28.73
25	k,t,2-Trichloroet/sins	29,34
26	Tetrachloroethene/1,3-Dichloropropaus	30.24
27	Orbramochlaromethene	31,16
28	1.2-Dilyromoethene	31.84
29	Chtprobenzené	33,26
30	Ethysbenzene/1,1,1,2-Tetrachiardetharie	23.40
31	m-Xylene/p-Xylene	33.86
32	a-Mylene	35.22
23	Styrene	35.30
34	Isopropyl tronzene/Bromoforch	36,48
35	cre-1.4-DigNoro-2-butens	36.00
39	1,1,2,2-Terrachiorosthana	37,23
37	1,3,6,6 intropropane	37.77
-	n-Propythukanen	37.92
311	trans-1, A-Dichloro-3-butens	38.05
39		38.14
40	Bromoberusins	28.50
-61	1,9,5-Trymethy-benzame	38.62
42	3-Cureusineus	38,77
43	4-Chlorotoluene	39.76
44	tert-Butythenzene	39.91
45	1,2,4-Trimethylbenzene	40.17
45	Pertachlomethere	40.57
47	sec-Butylbenzena	41.02
48	p-Tsopropykolu4fi4	
49	1,3-Drchiprobenzena	41.42
50	1,4-Dictiorobenzene	45.83
21	n-Butyibenzene	42.53
52	1,2-Dichlorobenzene	43.38
53	1,2-bibrama-3-chiaropropane	46,12
54	Attropenzene	46.48
55	1,2,4-TricHorobenzeris	49,26
56	Hercachiprobutadisme	49.72
52	Haphcharene	\$0.26
50	1,2,3-Trichlarobenzene	51.16

2 of 2

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC.

Emergency Telephone USA & CANADA

1-800-535-5053

Address

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

1-352-323-3500 January 1, 2023

Section II - Hazards Identification

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

H225 H370 **Highly Flammable Liquid and Vapor**

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

P271

Cause damage to organs Use in ventilated area

H351 P280

Suspected of causing cancer

P302.332

If on skin, wash with soap and water

P305,351,338

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

Eye protection.





Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

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

If swallowed

If inhaled

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media

Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

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

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation

Storage Conditions

TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

Methanol-SDS.xls

Page 1 of 2

Printed: 2/19/24

Absolute Standards Inc.

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

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

Solubility in Water

COMPLETE

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

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

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

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm

LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed.

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

LC50

15,400 mg/l - 96 h

EC50

24,500.00 mg/l - 48 h

EC100

10,000.00 mg/l - 24 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

IATA

Proper shipping name:

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

Proper shipping name:

UN number: 1230 Class: 3 Packing group: 11

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

Absolute Standards, Inc.

www.absolutestandards.com



Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Acrolein 091424 91980 Part Number: Lot Number: Description:

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

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

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

072324Q

Lot

Solvent(s): Water

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

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

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

TIC: [BSB2]79005,D

Abundance

1. Acrolein

8.93

250000

200002

150000

100000

50000

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

27

00009

50000

28

40000

30000

20002

10000

37

Time-->0

65 75 85

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

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

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Absolute Standards, Inc.

www.absolutestandards.com



Certified Reference Material CRM

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

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072324Q

Lot

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

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TIC: [BSB2]79005,D

Abundance

1. Acrolein

8.93

250000

200002

150000

100000

50000

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

27

00009

50000

28

40000

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Time-->0

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10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

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

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https://Absolutestandards.com

www.absolutestandards.com

Certified Reference Material CRM Dee



0

Lots Solvent(s):

95318

Part Number:

CERTIFIED WEIGHT REPORT

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

orl-rat 250mg/kg

M

110-75-8

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10002.9

0.50550

0.50536

0.2

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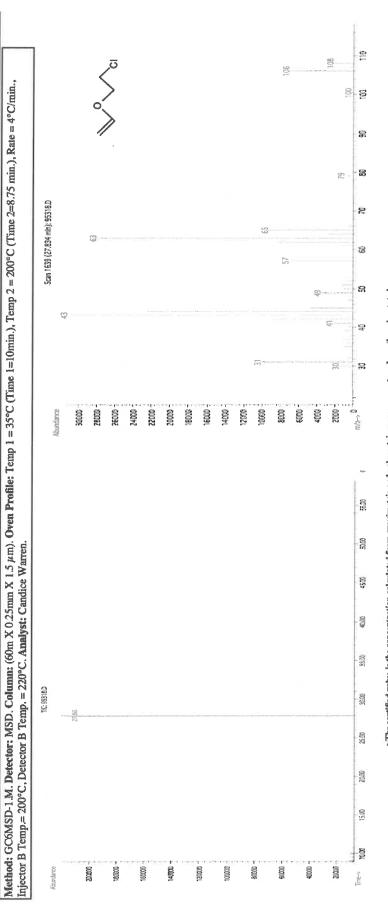
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MKCD0033

74

1. 2-Chloroethyl vinyl ether

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



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

- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certified (+/-1) 0.5% of the stated value, unless otherwise stated.
 All Standards, after opening ampule, should be stored with caps light and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC

Emergency Telephone USA & CANADA

1-800-535-5053

Address

44 Rossotto Dr.

Emergency Telephone International Date Prepared/Revised

1-352-323-3500 January 1, 2024

Hamden CT, 06514 Section II - Hazards Identification

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

H225

Highly Flammable Liquid and Vapor

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

H370

Cause damage to organs

H351 P280 Suspected of causing cancer

P271 P302.332

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

P305,351,338

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



Methanol





Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

If inhaled In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Flammability

If swallowed

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

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

Suitable extinguishing media Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

ignition. Vapours accumulate to form explosive concentrations.

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed

Storage Conditions and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

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

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

COMPLETE

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

Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

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

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight.

Materials to avoid

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

Certified Reference Material CRM Dec

0

2-Chloroethyl vinyl ether

Description:

Lot Number:

Part Number:

CERTIFIED WEIGHT REPORT

20524

Refrigerate (4 °C)

Recommended Storage:

Nominal Concentration (µg/mL):

Expiration Date:

10000 **6UTB**

120527

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

SDS Information

Uncertainty Expanded

Actual

Actual

Uncertainty

Purity

Nominal

5E-05 0.001

50.0

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

NIST Test ID#:

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

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

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9000

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

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC

Emergency Telephone USA & CANADA **Emergency Telephone International**

1-800-535-5053

Address 44 Rossotto Dr. Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

Section II - Hazards Identification

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

H225

Highly Flammable Liquid and Vapor

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

H370 P271

Cause damage to organs

H351 P280

Use gloves, eye protection/face shelld

P302.332

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

P305,351,338

If in eyes, remove contacts, rinse with water







Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

If inhaled In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

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

If swallowed

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

ignition. Vapours accumulate to form explosive concentrations.

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

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

Storage Conditions

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

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

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

COMPLETE

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

Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

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

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight.

Materials to avoid

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

Certified Reference Material CRM Dec

0

2-Chloroethyl vinyl ether

Description:

Lot Number:

Part Number:

CERTIFIED WEIGHT REPORT

20524

Refrigerate (4 °C)

Recommended Storage:

Nominal Concentration (µg/mL):

Expiration Date:

10000 **6UTB**

120527

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

SDS Information

Uncertainty Expanded

Actual

Actual

Uncertainty

Purity

Nominal

5E-05 0.001

50.0

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

NIST Test ID#:

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

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14000

2002

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18000

20000

Abradance

160000

9000

90009

40000

9000

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 - Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 Standards are certified (++) 0.5% of the stated value, unless otherwise stated.
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Phone: 203-281-2917 FAX: 203-281-2922

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC

Emergency Telephone USA & CANADA **Emergency Telephone International**

1-800-535-5053

Address 44 Rossotto Dr. Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

Section II - Hazards Identification

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

H225

Highly Flammable Liquid and Vapor

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

H370 P271

Cause damage to organs

H351 P280

Use gloves, eye protection/face shelld

P302.332

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

P305,351,338

If in eyes, remove contacts, rinse with water



Methanol





Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

CAS#: 67-56-1

% (optional) > 97

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

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice

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

If inhaled In case of skin contact

Wash with soap and water. Consult a physician.

In case of eye contact

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

If swallowed

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

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Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

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

Storage Conditions

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

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

67-56-1 TWA 200 ppm

Skin notation TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

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

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

COMPLETE

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

Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

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

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight.

Materials to avoid

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)

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

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

Section XV. REGULATORY INFORMATION

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

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Certified Reference Material CRM Dec

0

2-Chloroethyl vinyl ether

Description:

Lot Number:

Part Number:

CERTIFIED WEIGHT REPORT

20524

Refrigerate (4 °C)

Recommended Storage:

Nominal Concentration (µg/mL):

Expiration Date:

10000 **6UTB**

120527

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

SDS Information

Uncertainty Expanded

Actual

Actual

Uncertainty

Purity

Nominal

5E-05 0.001

50.0

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

NIST Test ID#:

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

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

14000

2002

0000

18000

20000

Abradance

160000

9000

90009

40000

9000

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

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

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

Safety Data Sheet (SDS)

GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

Manufacturer's Name

ABSOLUTE STANDARDS INC

Emergency Telephone USA & CANADA **Emergency Telephone International**

1-800-535-5053

Address 44 Rossotto Dr. Hamden CT, 06514

Date Prepared/Revised

1-352-323-3500 January 1, 2024

Section II - Hazards Identification

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

H351

H225 H370

Highly Flammable Liquid and Vapor

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

Cause damage to organs

Suspected of causing cancer

P271 Use in ventilated area P302.332 If on skin, wash with soap and water P280 P305,351,338

CAS#: 67-56-1

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







Signal Word: DANGER

Section III - Composition

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

METHYL ALCOHOL

% (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

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

Section V. FIREFIGHTING MEASURES

Flammability

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

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

Suitable extinguishing media Protective equipment for fire

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

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions

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

ignition. Vapours accumulate to form explosive concentrations.

Environmental precautions

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

Clean up

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

Section VII. HANDLING AND STORAGE

Precautions for safe handling

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

Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed

and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol

Storage Conditions

67-56-1 TWA 200 ppm

Skin notation TWA 200 ppm

Potential for skin absorption, ingestion and inhalation.

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

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

Section IX - Physical/Chemical Characteristics

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

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

COMPLETE

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

Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions

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

Conditions to avoid

Heat, flames, sparks, extreme temperature and sunlight.

Materials to avoid

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg

LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg

Toxic if absorbed through skin. Causes skin irritation.

Eye damage/eye irritation

Toxic if inhaled. Causes respiratory tract irritation.

Toxic if swallowed

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

UN number: 1230 Class: 3 Packing group: II

Proper shipping name:

Methanol

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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



CERTIFIED REFERENCE MATERIAL









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

www.restek.com

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.: 30067 Lot No.: A0191805

Description: 4-Bromofluorobenzene Standard

4-Bromofluorobenzene Standard 2,500µg/mL, P&T Methanol,

1mL/ampul

Container Size: 2 mL Pkg Amt: > 1 mL

Expiration Date: November 30, 2027 Storage: 0°C or colder

CERTIFIED VALUES

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

Ship:

Ambient

Solvent:

P&T Methanol

CAS # 67-56-1 Purity 99%

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

Quality Confirmation Test

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp:

200°C

Det. Temp:

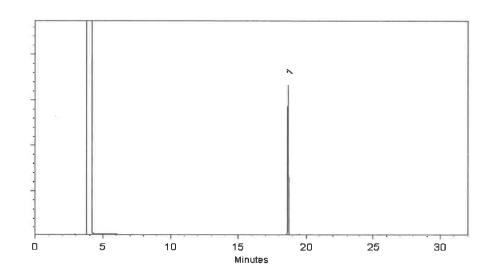
Det. Type:

Split Vent:

40 ml/min

Inj. Vol

 1μ l



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

企大 Alicia Leathers - Operation Technician I

Date Mixed:

17-Nov-2022

Balance Serial #

B251644995

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

21-Nov-2022

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



General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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





CERTIFIED REFERENCE MATERIAL









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www.restek.com

Certificate of Analysis chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# 67-56-1 Purity 99%

Quality Confirmation Test

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp: 200°C

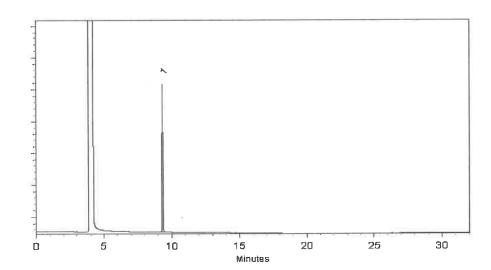
Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min Inj. Vol 1μا



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

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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

CERTIFIED VALUES

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

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

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

> Purity 99%

Quality Confirmation Test

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

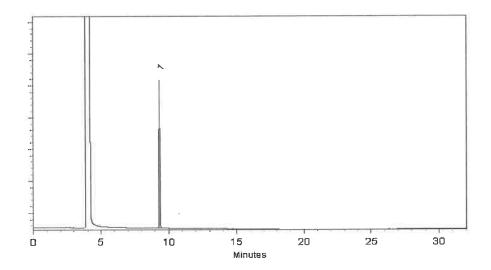
250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol 1μا



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

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

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



General Certified Reference Material Notes

Expiration Notes:

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Purity Notes:

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- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
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 parent compound in solution.
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- · 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%.

 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
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 most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom
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Ambient

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

CERTIFIED VALUES

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

Ship:

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

P&T Methanol

CAS# 67-56-1 Purity 99%

Solvent:

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp: 200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μا



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

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

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- · Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

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uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

Manufacturing Notes:

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

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









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Certificate of Analysis chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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Ambient

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

CERTIFIED VALUES

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

Ship:

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

P&T Methanol

CAS# 67-56-1 Purity 99%

Solvent:

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp: 200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol

1μا



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

Date Mixed:

29-Dec-2022

Balance Serial #

B707717271

Out the

Christie Mills - Operations Tech II - ARM QC

Date Passed:

03-Jan-2023

Expiration Notes:

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Purity Notes:

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- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
 correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
 parent compound in solution.
- · 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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The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded
uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability
uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

Manufacturing Notes:

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

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





CERTIFIED REFERENCE MATERIAL









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

Certificate of Analysis gravimetric

www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555582

Lot No.: A0196865

Description:

Custom 8260A/B Surrogate Mix

Custom 8260A/B Surrogate Mix 25,000µg/mL, P&T Methanol,

1mL/ampul

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

April 30, 2026

Pkg Amt:

> 1 mL

Storage:

10°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

Solvent:

P&T Methanol

CAS#

67-56-1

Purity

99%

Parker 7. Brown Russ Bookhamer - Operations Technician i

Date Mixed:

11-Apr-2023

Balance: 1127510105



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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



CERTIFIED REFERENCE MATERIAL







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

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Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30489

Lot No.: A0209618

Description:

8260B Acetates Mix

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

Container Size:

Pkg Amt:

> 1 mL

Expiration Date:

September 30, 2025

Storage:

-20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Methyl acetate	79-20 - 9	SHBP3100	99%	2,019.3 μg/mL	+/- 69.7974
2	Vinyl acetate	108-05-4	RP231030CTH	98%	2,016.8 μg/mL	+/- 69.7112
3	Ethyl acetate	141-78-6	SHBQ9682	99%	2,010.7 μg/mL	+/- 69.4979
4	Isopropyl acetate	108-21-4	BCCG7069	99%	2,016.0 μg/mL	+/- 69.6822
5	Propyl acetate	109-60-4	P8XLN	99%	2,008.0 μg/mL	+/- 69.4057
6	Butyl acetate	123-86-4	SHBP6314	99%	2,007.3 μg/mL	+/- 69.3826
7	Amyl acetate	628-63-7	41325/1	97%	2,004.7 μg/mL	+/- 69.2905

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

Solvent:

P&T Methanol

CAS# 67-56-1

Purity 99%

Tech Tips:

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



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

Quality Confirmation Test

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:

Split Vent: 40 ml/min

Inj. Vol



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

Sam Moodler - Operations Tech I

Date Mixed:

28-Mar-2024

Balance Serial #

B707717271

Dillan Murphy - Operations Technician I

Date Passed:

01-Apr-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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





CERTIFIED REFERENCE MATERIAL







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www.restek.com

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30489

Lot No.: A0209618

Description:

8260B Acetates Mix

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

Container Size:

Pkg Amt:

> 1 mL

Expiration Date:

September 30, 2025

Storage:

-20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Methyl acetate	79-20 - 9	SHBP3100	99%	2,019.3 μg/mL	+/- 69.7974
2	Vinyl acetate	108-05-4	RP231030CTH	98%	2,016.8 μg/mL	+/- 69.7112
3	Ethyl acetate	141-78-6	SHBQ9682	99%	2,010.7 μg/mL	+/- 69.4979
4	Isopropyl acetate	108-21-4	BCCG7069	99%	2,016.0 μg/mL	+/- 69.6822
5	Propyl acetate	109-60-4	P8XLN	99%	2,008.0 μg/mL	+/- 69.4057
6	Butyl acetate	123-86-4	SHBP6314	99%	2,007.3 μg/mL	+/- 69.3826
7	Amyl acetate	628-63-7	41325/1	97%	2,004.7 μg/mL	+/- 69.2905

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

Solvent:

P&T Methanol

CAS# 67-56-1

Purity 99%

Tech Tips:

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



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

Quality Confirmation Test

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp: 200°C

Det. Temp: 250°C

Det. Type:

Split Vent: 40 ml/min

Inj. Vol



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

Sam Moodler - Operations Tech I

Date Mixed:

28-Mar-2024

Balance Serial #

B707717271

Dillan Murphy - Operations Technician I

Date Passed:

01-Apr-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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





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Certificate of Analysis

gravimetric

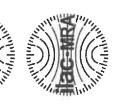


CERTIFIED REFERENCE MATERIAL



enence Material Prod Certificate #3222.01





FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Lot No.: A0210184 555581 Catalog No.:

Custom 8260 Internal Standard Mix Description: Custom 8260 Internal Standard Mix 25,000µg/mL, P&T Methanol,

1mL/ampul

> 1 mL Pkg Amt: 2 mL Container Size:

Storage: April 30, 2027 **Expiration Date:**

10°C or colder

Ambient

Ship:

VALUES CERTIFIED

Componen t#	Compound	CAS#	Lot#	Purity Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,4-Dichlorobenzene-d4	3855-82-1 PR-30447	PR-30447	99% 25,212.0 μg/mL	+/- 1,427.8857
2	1,4-Difluorobenzene	540-36-3	MKCS8657	99% 25,220.0 µg/mL	+/- 1,428.3388
3	Chlorobenzene-d5	3114-55-4 PR-31132	PR-31132	99% 25,116.0 µg/mL	+/- 1,422.4487
4	Pentafluorobenzene	363-72-4	363-72-4 MKCR9383	99% 25,180.0 µg/mL	+/- 1,426.0734

P&T Methanol CAS# **Solvent:**

67-56-1 %66 Purity

John Friedline - Operations Technician I Mr. T. Hi.

11-Apr-2024 Date Mixed:

Balance:

1127510105



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

Handling Notes

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



2 of 2



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

30019





Certificate of Analysis chromatographic plus

ISO/IEC 17025 Appredit

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

V14697-to-147

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0210618

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size:

2 mL

Pkg Amt:

> 1 mL

Expiration Date:

July 31, 2027

Storage:

0°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

Purity 99%

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol

1μΙ



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

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

Manufacturing Notes:

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

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

30019





Certificate of Analysis chromatographic plus

ISO/IEC 17025 Appredit

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V14697-to-147

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0210618

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size:

2 mL

Pkg Amt:

> 1 mL

Expiration Date:

July 31, 2027

Storage:

0°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

Purity 99%

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol

1μΙ



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

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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Purity Notes:

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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.

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

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

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

Manufacturing Notes:

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

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





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

30019





Certificate of Analysis chromatographic plus

ISO/IEC 17025 Appredit

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

V14697-to-147

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30006

Lot No.: A0210618

Description:

VOA Calibration Mix #1

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

1mL/ampul

Container Size:

2 mL

Pkg Amt:

> 1 mL

Expiration Date:

July 31, 2027

Storage:

0°C or colder

Ship:

Ambient

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol/Water (90:10)

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

Purity 99%

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

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

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

FID

Split Vent:

40 ml/min

Inj. Vol

1μΙ



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

Dakota Parson - Operations Technician I

Date Mixed:

22-Apr-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

24-Apr-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
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CERTIFIED REFERENCE MATERIAL 30 mid









Certificate of Analysis

chromatographic plus

V14727 to

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30042

Lot No.: A0216826

Description:

502.2 Calibration Mix #1

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

Container Size:

2 mL

Pkg Amt: > 1 mL

Expiration Date:

May 31, 2031

Storage:

0°C or colder

Ship: **Ambient**

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# **Purity**

67-56-1 99%

Column:

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

Carrier Gas:

helium-constant flow 2.0 mL/min.

Temp. Program:

40°C (hold 6 min.) to 100°C

@ 6°C/min.

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

MSD

Split Vent:

Split ratio 10:1

Inj. Vol 1µl



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

Tom Suckar Mix Technician

Date Mixed:

23-Sep-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

04-Oct-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



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CERTIFIED REFERENCE MATERIAL 30 mid









Certificate of Analysis

chromatographic plus

V14727 to

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

30042

Lot No.: A0216826

Description:

502.2 Calibration Mix #1

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

Container Size:

2 mL

Pkg Amt: > 1 mL

Expiration Date:

May 31, 2031

Storage:

0°C or colder

Ship: **Ambient**

CERTIFIED VALUES

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

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

Solvent:

P&T Methanol

CAS# **Purity**

67-56-1 99%

Column:

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

Carrier Gas:

helium-constant flow 2.0 mL/min.

Temp. Program:

40°C (hold 6 min.) to 100°C

@ 6°C/min.

Inj. Temp:

200°C

Det. Temp:

250°C

Det. Type:

MSD

Split Vent:

Split ratio 10:1

Inj. Vol 1µl



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

Tom Suckar Mix Technician

Date Mixed:

23-Sep-2024

Balance Serial #

B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed:

04-Oct-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

Manufacturing Notes:

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

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



CERTIFIED REFERENCE MATERIAL









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Certificate of Analysis

chromatographic plus

V14842 to 14846

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.: 30470 Lot No.: A0217535

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

Container Size: 2 mL Pkg Amt: > 1 mL

October 31, 2027

Storage: 0°C or colder
Ship: Ambient

CERTIFIED VALUES

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

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

Solvent: P&T Methanol

Expiration Date:

CAS # 67-56-1 **Purity** 99%

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

250°C

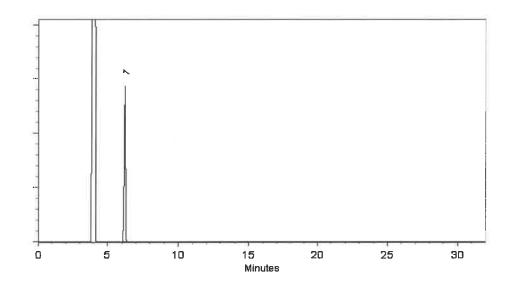
Det. Type:

FID

Split Vent: 40 ml/min

Inj. Vol

1μl



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

Aaron Enyart - Operations Tech I

Date Mixed:

07-Oct-2024

Balance Serial #

B251644995

Brittany Federinko - Operations Tech I

Date Passed:

09-Oct-2024

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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



CERTIFIED REFERENCE MATERIAL











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Certificate of Analysis

chromatographic

V14803-V14822

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555408-SL

Lot No.: A0220471

Description:

Custom Vinyl Acetate Standard

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

Container Size:

Pkg Amt:

> 1 mL

Expiration Date:

June 30, 2026

Storage:

-20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate	108-05-4	RD240423RSR	99%	8,066.0 μg/mL	+/- 278.7979

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

Solvent:

P&T Methanol

CAS# 67-56-1 **Purity** 99%

Tech Tips:

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

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol **1**µl



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

Stead Ethan Winiarski - Operations Tech I

Date Mixed:

24-Dec-2024

Balance Serial #

1127510105

Dillan Murphy - Operations Technician I

Date Passed:

02-Jan-2025

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

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
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 which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



CERTIFIED REFERENCE MATERIAL











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Certificate of Analysis

chromatographic

V14803-V14822

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No.:

555408-SL

Lot No.: A0220471

Description:

Custom Vinyl Acetate Standard

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

Container Size:

Pkg Amt:

> 1 mL

Expiration Date:

June 30, 2026

Storage:

-20°C or colder

Handling:

This product is photosensitive.

Ship: On Ice

CERTIFIED VALUES

Elution Order	Compound	CAS#	Lot#	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate	108-05-4	RD240423RSR	99%	8,066.0 μg/mL	+/- 278.7979

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

Solvent:

P&T Methanol

CAS# 67-56-1 **Purity** 99%

Tech Tips:

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

Column:

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

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C

@ 8°C/min. (hold 5 min.)

Inj. Temp: 200°C

Det. Temp:

250°C

Det. Type:

Split Vent:

40 ml/min

Inj. Vol **1**µl



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

Stead Ethan Winiarski - Operations Tech I

Date Mixed:

24-Dec-2024

Balance Serial #

1127510105

Dillan Murphy - Operations Technician I

Date Passed:

02-Jan-2025

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

Expiration Notes:

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

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
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 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
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uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

Manufacturing Notes:

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

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

Methanol
ULTRA RESI-ANALYZED
For Purge and Trap Analysis





Material No.: 9077-02

Batch No.: 22L0562016

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

Revision No.: 0

Certificate of Analysis

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

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

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC

