



CERTIFIED REFERENCE MATERIAL

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Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 30219 **Lot No.:** A0131468
Description : DW-VOC Mix#1A
DW-VOC Std #1A 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : October 31, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl chloride CAS # 75-01-4 Purity 99% (Lot 1026101231B1)	1,998.7 µg/mL	+/- 64.5402 µg/mL +/- 128.7973 µg/mL +/- 131.0851 µg/mL Gravimetric Unstressed Stressed
2	1,1-dichloroethene CAS # 75-35-4 Purity 99% (Lot SHBG8609V)	2,014.0 µg/mL	+/- 11.9625 µg/mL +/- 112.9495 µg/mL +/- 115.5911 µg/mL Gravimetric Unstressed Stressed
3	1,1,1-trichloroethane CAS # 71-55-6 Purity 99% (Lot B15W12061)	2,010.0 µg/mL	+/- 11.9388 µg/mL +/- 112.7252 µg/mL +/- 115.3616 µg/mL Gravimetric Unstressed Stressed
4	carbon tetrachloride CAS # 56-23-5 Purity 99% (Lot SHBC1410V)	2,002.0 µg/mL	+/- 11.8913 µg/mL +/- 112.2765 µg/mL +/- 114.9024 µg/mL Gravimetric Unstressed Stressed
5	1,2-Dichloroethane CAS # 107-06-2 Purity 99% (Lot MLBV4561V)	2,016.0 µg/mL	+/- 11.9744 µg/mL +/- 113.0617 µg/mL +/- 115.7059 µg/mL Gravimetric Unstressed Stressed
6	Benzene CAS # 71-43-2 Purity 99% (Lot SHBG7317V)	2,002.0 µg/mL	+/- 11.8913 µg/mL +/- 112.2765 µg/mL +/- 114.9024 µg/mL Gravimetric Unstressed Stressed
7	Trichloroethene CAS # 79-01-6 Purity 99% (Lot SHBH1955V)	2,010.0 µg/mL	+/- 11.9388 µg/mL +/- 112.7252 µg/mL +/- 115.3616 µg/mL Gravimetric Unstressed Stressed

8	1,4-Dichlorobenzene	2,018.0	µg/mL	+/- 11.9863	µg/mL	Gravimetric
	CAS # 106-46-7	(Lot MKBS1350V)		+/- 113.1738	µg/mL	Unstressed
	Purity 99%			+/- 115.8207	µg/mL	Stressed

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

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

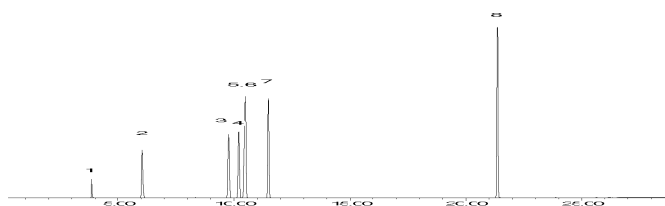
Carrier Gas:
helium-constant pressure 30 psi

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:
MSD

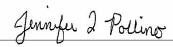


This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Joseph Jaglowski - Mix Technician

Date Mixed: 09-Oct-2017

Balance: B707717271


Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 11-Oct-2017

Manufactured under Restek's ISO 9001:2008
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 Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.