



# CERTIFIED REFERENCE MATERIAL

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

www.restek.com

## 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. :** 30220 **Lot No.:** A0131155

**Description :** DW-VOC Mix #2  
DW-VOC Std #2A 2000µg/mL, P&T Methanol, 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** October 31, 2024 **Storage:** 0°C or colder

### CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	cis-1,2-Dichloroethene	1,999.2 µg/mL	+/-	11.8746	µg/mL	Gravimetric
	CAS # 156-59-2 (Lot MKBV2831V)		+/-	112.1195	µg/mL	Unstressed
	Purity 98%		+/-	114.7417	µg/mL	Stressed
2	trans-1,2-Dichloroethene	1,998.0 µg/mL	+/-	11.8675	µg/mL	Gravimetric
	CAS # 156-60-5 (Lot MKBH9850V)		+/-	112.0522	µg/mL	Unstressed
	Purity 99%		+/-	114.6728	µg/mL	Stressed
3	1,2-Dichloropropane	2,000.0 µg/mL	+/-	11.8794	µg/mL	Gravimetric
	CAS # 78-87-5 (Lot BCBR0882V)		+/-	112.1643	µg/mL	Unstressed
	Purity 99%		+/-	114.7876	µg/mL	Stressed
4	Toluene	2,006.0 µg/mL	+/-	11.9150	µg/mL	Gravimetric
	CAS # 108-88-3 (Lot MKBX4851V)		+/-	112.5008	µg/mL	Unstressed
	Purity 99%		+/-	115.1320	µg/mL	Stressed
5	Tetrachloroethene	2,002.0 µg/mL	+/-	11.8913	µg/mL	Gravimetric
	CAS # 127-18-4 (Lot SHBH1014V)		+/-	112.2765	µg/mL	Unstressed
	Purity 99%		+/-	114.9024	µg/mL	Stressed
6	Chlorobenzene	2,000.0 µg/mL	+/-	11.8794	µg/mL	Gravimetric
	CAS # 108-90-7 (Lot SHBH4459V)		+/-	112.1643	µg/mL	Unstressed
	Purity 99%		+/-	114.7876	µg/mL	Stressed
7	Ethylbenzene	2,008.0 µg/mL	+/-	11.9269	µg/mL	Gravimetric
	CAS # 100-41-4 (Lot SHBJ0829)		+/-	112.6130	µg/mL	Unstressed
	Purity 99%		+/-	115.2468	µg/mL	Stressed

8	m-Xylene			2,000.0	µg/mL	+/-	11.8794	µg/mL	Gravimetric
	<b>CAS #</b>	108-38-3	(Lot SHBH8323)			+/-	112.1643	µg/mL	Unstressed
	<b>Purity</b>	99%				+/-	114.7876	µg/mL	Stressed
9	p-Xylene			2,004.0	µg/mL	+/-	11.9032	µg/mL	Gravimetric
	<b>CAS #</b>	106-42-3	(Lot SHBG3928V)			+/-	112.3887	µg/mL	Unstressed
	<b>Purity</b>	99%				+/-	115.0172	µg/mL	Stressed
10	o-Xylene			2,004.0	µg/mL	+/-	11.9032	µg/mL	Gravimetric
	<b>CAS #</b>	95-47-6	(Lot SHBH3432V)			+/-	112.3887	µg/mL	Unstressed
	<b>Purity</b>	99%				+/-	115.0172	µg/mL	Stressed
11	Styrene			2,002.0	µg/mL	+/-	11.8913	µg/mL	Gravimetric
	<b>CAS #</b>	100-42-5	(Lot 10182421)			+/-	112.2765	µg/mL	Unstressed
	<b>Purity</b>	99%				+/-	114.9024	µg/mL	Stressed
12	1,2-Dichlorobenzene			2,008.0	µg/mL	+/-	11.9269	µg/mL	Gravimetric
	<b>CAS #</b>	95-50-1	(Lot SHBD7331V)			+/-	112.6130	µg/mL	Unstressed
	<b>Purity</b>	99%				+/-	115.2468	µg/mL	Stressed
<b>Solvent:</b>	P&T Methanol								
	<b>CAS #</b>	67-56-1							
	<b>Purity</b>	99%							

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

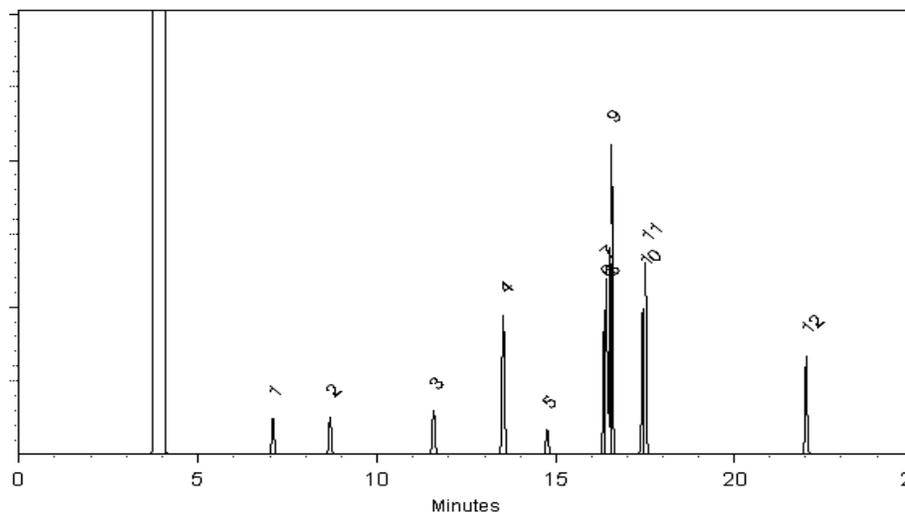
**Carrier Gas:**  
hydrogen-constant pressure 11.0 psi.

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

**Inj. Temp:**  
200°C

**Det. Temp:**  
250°C

**Det. Type:**  
FID



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

*Cydnei L. Crust*  
Cydnei L. Crust - Mix Technician

**Date Mixed:** 28-Sep-2017      **Balance:** B707717271

*Jennifer J. Pollino*  
Jennifer Pollino - Operations Tech-ARM QC

**Date Passed:** 02-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](http://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](http://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.