



Toxic Organic and Ozone Precursor Reference Standards

Volatile Organic Compounds (VOCs) are toxic chemicals believed to aid in ozone formation in the atmosphere. AREAL (EPA Atmospheric Research and Exposure Laboratory) has developed a number of methods for measuring these components in ambient air. These methods provide a standardized format for sampling and analysis of VOCs.

Matheson Tri-Gas leads the industry by providing the most stable, consistent and accurate Toxic Organic and Ozone Precursor Reference Standards. Each mixture is manufactured and measured using state-of-the-art measuring and mixing techniques such as:

- High precision gravimetric and multi-gravimetric techniques providing the lowest direct weight additions

- Multi-range reference standards from our inventory
- NIST traceability
- State-of-the-art GC/MS instruments and testing methods

Matheson Tri-Gas manufactures calibration mixtures for TO-15, TO-14A, and the Ozone Precursor Method. All are filled in our Microshield™ treated cylinders for extra stability, and are guaranteed with a 12-month shelf life. Custom mixtures can be produced depending on your specific requirements. Please see pages 64 - 65 for more information.

Toxi-MAT-14™

40 Component Mixture for EPA Method TO-14A

Shipping Information

UN Number: UN 1956
 DOT Proper Shipping Name: Compressed Gas, nos, (List of Components)
 DOT Classification: 2.2 (Nonflammable Gas)
 DOT Label: NON-FLAMMABLE GAS
 TC Shipping Name: Compressed Gas, nos, (List of Components)
 TC Classification: 2.2
 TC Label: NON-FLAMMABLE GAS, NON-POISONOUS GAS

Cylinder Specifications

Cylinder Size	Valve Outlet CGA No.	Pressure psig @ 70°F	Pressure kPa @ 21.1°C	Approximate Ship Weight	
				lb	kg
1I	350	1,800	12,410	69	36
2I	350	1,800	12,410	48	22
3I	350	1,800	12,410	28	13
6I	180	1,775	12,238	5	2

List of Components

- Benzene
- Benzyl chloride
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 1,2-Dibromoethane
- m-Dichlorobenzene
- o-Dichlorobenzene
- p-Dichlorobenzene
- Dichlorodifluoromethane (R-12)
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- cis-1,2-Dichloroethylene
- Balance VOC Free Nitrogen
- 1,2-Dichloropropane
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- 1,2-Dichlorotetrafluoroethane (R-114)
- Ethyl chloride
- Ethylbenzene
- Hexachloro-1,3-butadiene
- Methyl bromide
- Methyl chloride
- Methylene chloride
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- Toluene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane (Methylchloroform)
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane (R-11)
- 1,1,2-Trichlorotrifluoroethane (R-113)
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Vinyl chloride
- m-Xylene
- o-Xylene
- p-Xylene

1 ppm Mix Product Code	100 ppb Mix Product Code	Cylinder Size	Content US	Content Metric	Equipment Recommendations	Model No.	Page No.
40 Minor Component TO-14A							
G0819468	G0819568	1I	130 ft ³	3.68 m ³	Low Dead Volume Regulator	3590-TO-350	315
G2658375	G2658404	2I	69 ft ³	1.95 m ³	Low Dead Volume Regulator	3590-TO-180	315
G0819428	G0819528	3I	26 ft ³	0.74 m ³	TOC Delivery Line	TBG-0503-XX*	
G0819453	G0819553	6I	3.64 ft ³	103 L	Toxic Organic VOC Kit for 6I Cylinders	KIT-0473-XX	
40 Minor Component TO-14A (Plus 4-Ethyltoluene)							
G0819468A	G0819568A	1I	130 ft ³	3.68 m ³	Micro CALKIT™	CKIT-TUFF	183
G2658375A	G2658404A	2I	69 ft ³	1.95 m ³	Low Dead Volume Regulator	3590-TO-180	315
G0819428A	G0819528A	3I	26 ft ³	0.74 m ³	TOC Delivery Line	TBG-0503-XX*	
G0819453A	G0819553A	6I	3.64 ft ³	103 L			

Please refer to Matheson Technical Bulletin TB-363 for more information

Notes: 1. Benzyl chloride stability is not guaranteed in size 6I cylinder. Concentration of all components will be the same.

2. Compendium Method TO-14A also has 41 minor component mixture for GC/MS/SIM: 40 component mix plus 4-Ethyltoluene.

3. Additional minor components can be added to create custom mixtures. Please inquire.

*Consult factory.