

Method TO-15/TO-17 Calibration Standard

The TO-15 / TO-17 Calibration Standard consists of 64 components at standard concentrations of one (1) ppm or one hundred (100) ppb in a balance gas of VOC free nitrogen (N₂). Other concentrations are available as custom mixtures.

To enhance your QA/QC procedures, Spectra stocks at least two (2) individual batches of each VOC raw material allowing you to order two (2) independent TO-15 / TO-17 Calibration Standards.

Whether you are performing Compendium Method TO-15; "**Determination of Volatile Organic Compounds (VOCs) In Air Collected in Specially Prepared Canisters And Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)**" or Compendium Method TO-17; "**Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes**", Spectra's Calibration Standard is the standard of choice.

Acetone[67-64-1]	4-Ethyltoluene[622-96-8]
Acrolein* [107-02-8]	Freon 11 (trichlorofluoromethane)[75-69-4]
Benzene[71-43-2]	Freon 12 (dichlorodifluoromethane) [75-71-8]
Benzyl chloride*[100-44-7]	Freon 113(1,1,2-trichloro-1,2,2 trifluoroethane)[76-13-1]
Bromoform[75-25-2]	Freon 114(1,2-dichlorotetrafluoroethane)[76-14-2]
Bromomethane[74-83-9]	Heptane[142-82-5]
Bromodichloromethane[75-27-4]	Hexachloro-1,3-butadiene[87-68-3]
1,3-Butadiene[106-99-0]	Hexane[110-54-3]
2-Butanone (MEK)[78-93-3]	2-Hexanone (MBK)[591-78-6]
Carbon disulfide*[75-15-0]	Methyl methacrylate [80-62-6]
Carbon tetrachloride[56-23-5]	4-Methyl-2-pentanone (MIBK)[108-10-1]
Chlorobenzene[108-90-7]	Methylene chloride[75-09-2]
Chlorethane[75-00-3]	Methyl-tert-butylether (MTBE)[1634-04-4]
Chloroform[67-66-3]	2-Propanol[67-63-0]
Cyclohexane[110-82-7]	Propylene[115-07-1]
Chloromethane[74-87-3]	Styrene[100-42-5]
Dibromochloromethane[124-48-1]	1,1,2,2-Tetrachloroethane[79-34-5]
1,2-Dichlorobenzene[95-50-1]	Tetrachloroethene[127-18-4]
1,3-Dichlorobenzene[541-73-1]	Tetrahydrofuran[100-99-9]
1,4-Dichlorobenzene[106-46-7]	Toluene[108-88-3]
1,1-Dichloroethane [75-34-3]	1,1,1-Trichloroethane[71-55-6]
1,2-Dichloroethane[107-06-2]	1,1,2-Trichloroethane[79-00-5]
1,1-Dichloroethene[75-35-4]	Trichloroethene[79-01-6]
cis-1,2-Dichloroethene[156-59-2]	1,2,4-Trichlorobenzene[120-82-1]
trans-1,2-Dichloroethene[156-60-5]	1,2,4-Trimethylbenzene[95-63-6]
1,2-Dichloropropane[78-87-5]	1,3,5-Trimethylbenzene[108-67-8]
cis-1,3-Dichloropropene[10061-01-5]	Vinyl acetate[108-05-4]
trans-1,3-Dichloropropene[10061-02-6]	Vinyl chloride[75-01-4]
1,4-Dioxane[123-91-1]	o-Xylene[95-47-6]
Ethanol*[64-17-5]	m-Xylene[108-38-3]
Ethyl acetate[141-78-6]	p-Xylene[106-42-3]
Ethyl benzene[100-41-4]	
Ethyl dibromide (1,1-Dibromoethane) [557-91-5]	

NOTE: CAS numbers are in square brackets, i.e. [00-00-0]

Blend tolerance at 1 ppm is +/- 10% and at 100 ppb +/- 20%

Analytical tolerance at 1 ppb is +/-5% except for * components which are +/-10%

Analytical tolerance at 100 ppb is +/-10% except for * components which are +/-20%



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TO-15/TO-17 Subset Calibration Standard

The TO-15 / TO-17 Subset Calibration Standard consists of 25 components which are not contained in the TO-14 Calibration Standard. It is available from stock at standard concentrations of one (1) ppm or one hundred (100) ppb in a balance gas of VOC free nitrogen (N₂). Other concentrations are available as custom mixtures.

Acetone [67-64-1]	4-Ethyltoluene [622-96-8]
Allyl Chloride [107-05-1]	n-Heptane [142-82-5]
Benzyl Chloride* [100-44-7]	n-Hexane [110-54-3]
Bromodichloromethane [75-27-4]	2-Hexanone (MBK) [591-78-6]
Bromoform [75-25-2]	4-Methyl-2-Pentanone (MIBK) [108-10-1]
1,3-Butadiene [106-99-0]	Methyl-tert-Butyl ether (MTBE) [1634-04-4]
2-Butanone (MEK) [78-93-3]	2-Propanol [67-63-0]
Carbon Disulfide* [75-15-0]	Propylene [115-07-1]
Cyclohexane [110-82-7]	Tetrahydrofuran [109-99-9]
Dibromochloromethane [124-48-1]	Vinyl Acetate [108-05-4]
trans-1,2-Dichloroethene [156-60-5]	Vinyl Bromide [593-60-2]
1,4-Dioxane [123-91-1]	2,2,4-Trimethylpentane [540-84-1]
Ethyl Acetate [141-78-6]	

NOTE: CAS numbers are in square brackets, i.e. [00-00-0]

Blend tolerance at 1 ppm is +/- 10% and at 100 ppb +/- 20%

Analytical tolerance at 1 ppm is +/-5% except for * components which are +/-10%

Analytical tolerance at 100 ppb is +/-10% except for * components which are +/-20%

Regulator Recommendation

Various independent and Agency laboratories have indicated that to ensure repeatability with low level calibration gases it is best to utilize the same regulator for initial assay and for daily usage, thus minimizing the sources for potential variances and possible cross contamination. If a regulator is purchased along with the TO-15 / TO-17 Calibration Standard, Spectra Gas will perform the initial assay and certification of analysis utilizing regulator and cylinder as a matched set.

Spectra Gases' Model 7621 regulator is ideal for use with TO-15 / TO-17 Calibration Standards please see equipment section for further information on this and other gas handling equipment.

Standard Available Cylinders

Cylinder Size	Volume	Pressure	CGA
2A	4000 liters	2000 psig	350
6A	104 liters	1800 psig	180

Stability guaranteed for a minimum of 12 months except for acrolein which has no guarantee.