

Certified Environmental Calibration Standards

Certified and primary calibration gas standards are used for instrument calibration and other monitoring and measurement applications where either use of an EPA Protocol calibration standard is not required or an EPA Protocol standard is not available.

As with all Spectra environmental standards, Certified Environmental Calibration Standards are produced gravimetrically directly traceable to NIST standards in cylinders that have been individually passivated by the proprietary Spectrashield™ process.

In addition, where NIST or comparable international standards are available, analysis are performed utilizing these international standards. Where standards are not available from international metrology organizations, Spectra employs in-house developed analysis technology and standards to provide you with the most accurate and reliable standards available.

Each cylinder is individually analyzed and supplied with a Certificate of Analysis (C of A).

TYPICAL SPECIFICATIONS

Concentration Range	CERTIFIED STANDARDS		PRIMARY STANDARDS	
	Blend Tolerance	Analysis	Blend Tolerance	Analysis
< 100 ppb	Consult factory	Consult factory	Consult factory	Consult factory
100 ppb to 999 ppb	± 20%	± 10%	± 10%	± 5%
1 ppm TO 9999 ppm	± 10%	± 5%	± 5%	± 1%
> 1%	± 5%	± 2%	± 1%	± 0.02% absolute

Certified and primary calibration gas standards are available in size 2A, 3A, and 4A aluminum cylinders and where appropriate in size 2, 3, and 4 internally polished and passivated steel cylinders.

All certified and primary calibration gas standards are filled to the maximum pressure and volume as determined by the cylinder, the vapor pressure of the mixture, or restrictions due to flammable-oxidizer (flam-ox) requirements.

(Continued)



Component	Balance	Available Concentrations
Ammonia (NH ₃)	Zero Air	25 ppm to 6% ²
Ammonia (NH ₃)	N ₂	1 ppm to 10% ²
Benzene (C ₆ H ₆)	Zero Air	1 ppm to 1000 ppm ^{1,2}
Benzene (C ₆ H ₆)	N ₂	10 ppb to 1000 ppm ¹
Carbon Dioxide (CO ₂)	Zero Air	1 ppm to 20%
Carbon Dioxide (CO ₂)	N ₂	1 ppm to 20%
Carbon Monoxide (CO)	Zero Air	500 ppb to 3% ²
Carbon Monoxide (CO)	N ₂	500 ppb to 20%
Ethylene Oxide (C ₂ H ₂ O)	N ₂	1 ppm to 1% ¹
Hexane (C ₆ H ₁₄)	Zero Air	100 ppb to 5000 ppm ²
Hexane (C ₆ H ₁₄)	N ₂	10 ppb to 5000 ppm ¹
Hydrogen Chloride (HCl)	N ₂	10 ppm to 1%
Hydrogen Sulfide (H ₂ S)	Zero Air	5 ppm to 1000 ppm
Hydrogen Sulfide (H ₂ S)	N ₂	1 ppm to 3%
Mercury (Hg)	N ₂	2 µg/m ³ to 60 µg/m ³
Methane (CH ₄)	Zero Air / N ₂	1 ppm to 2.5% ²
Methane (CH ₄)	N ₂	1 ppm to 10%
Nitric Oxide (NO)	N ₂	500 ppb to 2%
Nitrogen Dioxide (NO ₂)	Zero Air	25 ppm to 0.5%
Phosphine (PH ₃)	N ₂	100 ppb to 1000 ppm
Propane (C ₃ H ₈)	Zero Air	10 ppb to 1% ^{1,2}
Propane (C ₃ H ₈)	N ₂	10 ppb to 25%
Sulfur Dioxide (SO ₂)	Zero Air	5 ppm to 2%
Sulfur Dioxide (SO ₂)	N ₂	500 ppb to 2%
Sulfur Hexafluoride (SF ₆)	Zero Air	100 ppb to 1%
Sulfur Hexafluoride (SF ₆)	N ₂	100 ppb to 1%
Toluene (C ₆ H ₅ CH ₃)	Zero Air	1 ppm to 100 ppm ¹
Toluene (C ₆ H ₅ CH ₃)	N ₂	25 ppb to 100 ppm ¹
Vinyl chloride (C ₂ H ₃ Cl)	Zero Air	100 ppb to 2000 ppm ¹
Vinyl chloride (C ₂ H ₃ Cl)	N ₂	100 ppb to 2000 ppm ¹

¹ Vapor pressure constraints will limit fill pressure/volume at higher concentrations of this standard

² Flam/ox constraints will limit fill pressure/volume at higher concentrations of this standard.

Please consult factory for other components and concentrations