



Typical Components, Concentration Ranges and Certification Periods for Environmental Products

Binary Mixtures

Component	Balance	Concentration Range	Certification Period	CGA	400 Series Regulator (See Page F2)
Carbon Dioxide	Air/Nitrogen	0.3% - 50%	6 mo <300 ppm 36 mo ≥ 300 ppm	590/580	Non-corrosive
Carbon Monoxide	Air/Nitrogen	5 ppm - 50%	6 mo <8 ppm 36 mo ≥ 8 ppm	590/350	Non-corrosive
Hydrogen Sulfide	Air/Nitrogen	0.3% - 50%	6 mo <4 ppm 12 mo ≥ 4 ppm	330	Corrosive
Methane	Air/Nitrogen	1 ppm - 1000 ppm	36 mo ≥ 1 ppm	590/350	Non-corrosive
Nitric Oxide	Nitrogen	2.5 ppm - 2.9%	6 mo <4 ppm 24 mo ≥ 4 ppm	660	Corrosive
Nitrogen Dioxide	Air	10 ppm - 500 ppm	6 mo <80 ppm 24 mo ≥ 80 ppm	660	Corrosive
	Nitrogen	2.5 ppm - 1%	6 mo <80 ppm 24 mo ≥ 80 ppm	660	Corrosive
Oxygen	Nitrogen	0.6% - 50%	6 mo <.8% 36 mo ≥ .8%	580/590/296*	Non-corrosive
Propane	Air/Nitrogen	1 ppm - 13%	36 mo ≥ 1 ppm	590/350	Non-corrosive
Sulfur Dioxide	Air	25 ppm - 4%	6 mo ≤39 ppm 24 mo = 40-499 ppm 36 mo ≥ 500 ppm	660	Corrosive
	Nitrogen	2.5 ppm - 4%	6 mo ≤39 ppm 24 mo = 40-499 ppm 36 mo ≥ 500 ppm	660	Corrosive

* CGA varies with O₂ concentration. Refer to page D48 for specifics.

Reminders

- Multi-component Protocols are assigned a certification period based on the minor component or balance gas with the shortest certification period.
- Protocol concentrations lower than those listed will have an initial 6-month certification period. Upon recertification, acceptable cylinders may have extended certifications.
- Some mixtures may not be available due to critical mixture limitations and safety considerations.
- Analytical uncertainty for certain mixture components and concentrations may vary. The actual analytical uncertainty will be specified on the Certificate of Analysis.
- Trace concentrations of other pollutants in the mixture can be certified on request.
- For CEM zero grade gas products, Reference Section C for Air (pages C2 and E10) and Nitrogen (pages C44 and E10).
- Other mixture components or concentrations may be available, please inquire.
- Certification periods apply only to mixtures in aluminum containers. 6-month certification applies to all others (e.g. steel).
- EPA Protocol mixtures should not be used below 150 psig.