

# ELECTRONIC GAS

## ARSINE AsH<sub>3</sub> MIXTURES

Arsine can be diluted with argon, helium, hydrogen or nitrogen in order to provide concentrations of less than 100%. Using arsine in this form can add an additional degree of control to the process, particularly when relatively small amounts of arsenic are to be deposited. Arsine mixtures are prepared as ordered. Concentrations other than those listed below are available upon request.

Description										
CYLINDER CONNECTION: CGA-350										
DOPING CONCENTRATIONS can be mixed with UHP or VLSI grade balance gases										
Arsine Concentration	Cylinder Size	Pressure psig	Argon		Helium		Hydrogen		Nitrogen	
			ft <sup>3</sup>	m <sup>3</sup>	ft <sup>3</sup>	m <sup>3</sup>	ft <sup>3</sup>	m <sup>3</sup>	ft <sup>3</sup>	m <sup>3</sup>
5 ppm - 12%	049	1500	193	5.5	168	4.8	168	4.8	179	5.0
	044	1500	167	4.7	146	4.1	146	4.1	156	4.4
	016	1500	63	1.8	55	1.6	55	1.6	58	1.7
SHELF LIFE: 5 - 7500 ppm 1 year > 7500 ppm 2 years										

### Arsine in Hydrogen, high concentration mixtures

The pressures on these high concentration mixtures are lower than those shown above due to the fact that arsine has a low vapor pressure. Only a maximum amount can be put into a cylinder to avoid liquefaction of the arsine. To achieve higher concentrations, less hydrogen will added.

Arsine Concentration	Cylinder Size	Pressure psig	Contents	
			ft <sup>3</sup>	m <sup>3</sup>
12.5% - 15%	049	1000	130	3.7
	044	1000	113	3.2
	016	1000	43	1.2

### DOT Shipping Information

#### HYDROGEN BALANCE

Conc	Shipping Name	Shipping Papers	Shipping Labels
>10%	__% Arsine/Hydrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Hydrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone A	Poison Gas Flammable Gas
10% - 2%	__% Arsine/Hydrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Hydrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone B	Poison Gas Flammable Gas
2% - 0.67%	__% Arsine/Hydrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Hydrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone C	Poison Gas Flammable Gas
0.67% - 0.4%	__% Arsine/Hydrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Hydrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone D	Poison Gas Flammable Gas
<4000 ppm	__ppm Arsine/Hydrogen Mixture	Compressed Gases, flammable, nos (__ppm Arsine/Hydrogen Mixture) 2.1 UN 1954	Flammable Gas

#### NITROGEN BALANCE

Conc	Shipping Name	Shipping Papers	Shipping Labels
>10%	__% Arsine/Nitrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Nitrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone A	Poison Gas Flammable Gas
10% - 2%	__% Arsine/Nitrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Nitrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone B	Poison Gas Flammable Gas
2% - 1%	__% Arsine/Nitrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Nitrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone C	Poison Gas Flammable Gas
1% - 0.67%	__% Arsine/Nitrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Nitrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone C	Poison Gas
0.67% - 0.4%	__% Arsine/Nitrogen Mixture Inhalation Hazard	Compressed Gases, toxic, flammable, nos (__% Arsine/Nitrogen Mixture) 2.3 UN 1953 Poison Inhalation Hazard, Hazard Zone D	Poison Gas
<4000 ppm	ppm Arsine/Nitrogen Mixture	Compressed Gases, nos (__ppm Arsine/Nitrogen Mixture) 2.2 UN 1956	Non-flammable Gas