

ELECTRONIC GAS

ARSINE AsH₃

Arsine is a highly toxic, flammable colorless gas with an odor similar to garlic. The odor is subjective and therefore not reliable, and should not be used to detect the presence of the gas. Its atom is an n-type dopant for epitaxial silicon. It is introduced in the silicon wafer by diffusion or implantation techniques. It is shipped as a liquefied gas under its own vapor pressure.

Container Information			
CYLINDER SIZE	CONTENTS		Pressure @ 21.1°C Valve Outlet
	LB	KG	
044	50	22.7	205 psig
016	25	11.3	CGA-350 / DISS-632
010	10	4.5	DOT Shipping Description: Arsine, 2.3, UN 2188 Poison-Inhalation Hazard Hazard Zone A Poison Gas Flammable Gas
4X	800g		DOT Shipping Labels
7X	30g		DOT Guide No. 15 CAS Registry No. 7784-42-1

Specifications			
COMPONENT ARSINE	ULSI 99.99995% min	VLSI 99.9999% min	ELECTRONIC 99.999% min
Argon	< 50 ppb	< 100 ppb	
Nitrogen	< 100 ppb	< 250 ppb	< 2 ppm
Oxygen	< 40 ppb	< 40 ppb	< 1 ppm
Carbon Dioxide	< 40 ppb	< 40 ppb	< 0.5 ppm
Carbon Monoxide	< 10 ppb	< 10 ppb	< 0.1 ppm
Methane	< 10 ppb	< 10 ppb	
Ethane	< 25 ppb	< 50 ppb	
Propane	< 25 ppb	< 50 ppb	
THC (as Methane)			< 0.5 ppm
Phosphine	< 50 ppb	< 50 ppb	< 1 ppm
Water	< 100 ppb	< 350 ppb	< 2 ppm
Germane	< 50 ppb	< 50 ppb	

SHELF LIFE: 18 months

Physical Properties	
Molecular Weight	77.95
Flammability Limits in air	LFL 4.5%
Specific Gravity,	
Gas @ 70°F(21.1°C), 1 atm(Air=1)	2.69
Density, Gas @ 70°F(21.1°C), 1 atm	0.20lbs/ft ³ (3.24g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	4.95ft ³ /lb (0.309l/g)
Boiling Point @ 1 atm	-80.5°F (-62.5°C)
Melting Point @ 1 atm	-178.5°F (-116.9°C)
Critical Temperature	211.8°F (99.9°C)
Toxicity	
PEL / TLV	0.05 ppm
TC _{Lo} (Inhalation Human)	3 ppm
LC ₅₀ RAT	20 ppm
NIOSH	6 ppm

ULSI Metals Specifications			
ELEMENT	SYMBOL	GAS PHASE	LIQUID PHASE
Antimony	Sb	< 25	< 100
Cadmium	Cd	< 10	< 25
Calcium	Ca	< 10	< 10
Chromium	Cr	< 10	< 10
Cobalt	Co	< 10	< 10
Copper	Cu	< 10	< 10
Gallium	Ga	< 10	< 50
Germanium	Ge	< 10	< 100
Iron	Fe	< 50	< 50
Lead	Pb	< 10	< 10
Lithium	Li	< 1	< 10
Magnesium	Mg	< 10	< 10
Manganese	Mn	< 5	< 5
Molybdenum	Mo	< 10	< 100
Nickel	Ni	< 10	< 10
Potassium	K	< 1	< 10
Selenium	Se	< 1	< 100
Silicon	Si	< 10	< 10
Sodium	Na	< 10	< 10
Tin	Sn	< 10	< 300
Zinc	Zn	< 10	< 50

*all values in ppbw, lot analysis only

HSG

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