

ELECTRONIC GASES

PHOSPHINE PH₃

Phosphine is a highly toxic, flammable, colorless gas with an odor similar to that of decaying fish. The odor is subjective and therefore not reliable, and should not be used to detect the presence of the gas. It is subject to spontaneous combustion. Phosphine is shipped as a liquefied gas under its own vapor pressure.

Container Information

CYLINDER SIZE	CONTENTS		Pressure@21.1°C Valve Outlet	593 psig std: CGA-350 opt: DISS-632
	LB	KG		
044	30	13.6	DOT Shipping Description: DOT Shipping Labels DOT Guide No. CAS Registry No.	Phosphine, 2.3, UN 2199 Poison-Inhalation Hazard Hazard Zone A Poison Gas Flammable Gas 18 7803-51-2
016	9	4.1		
008	5	2.3		
003	1.5	0.7		

Specifications

COMPONENT	ULSI	VLSI	ELECTRONIC
PHOSPHINE	99.9999%min	99.9998%min	99.999%min
Argon	< 100 ppb	< 500 ppb	
Arsine	< 100 ppb	< 100 ppb	< 2 ppm
Carbon Dioxide	< 100 ppb	< 100 ppb	< 1 ppm
Carbon Monoxide	< 100 ppb	< 100 ppb	< 500 ppm
Methane	< 100 ppb	< 100 ppb	
Ethane	< 100 ppb	< 100 ppb	
Propane	< 100 ppb	< 100 ppb	
THC (as Methane)	< 100 ppb		< 1 ppm
Nitrogen	< 100 ppb	<10000 ppb	< 3 ppm
Oxygen	< 100 ppb	< 100 ppb	< 1 ppm
Water	< 100 ppb	< 1000 ppb	< 1 ppm

SHELF LIFE: 18 months

Physical Properties

Molecular Weight	34.04
Flammability Limits in air	Non Available
Specific Gravity,	
Gas @ 70°F(21.1°C), 1 atm(Air=1)	1.28
Density, Gas @ 70°F(21.1°C), 1 atm	0.0955lb/ft ³ (1.53g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	10.47ft ³ /lb (0.65l/g)
Boiling Point @ 1 atm	-125.99°F (-87.77°C)
Melting Point @ 1 atm	-208.8°F (-133.8°C)
Critical Temperature	124.9°F (51.6°C)
Critical Pressure	947.9 psia (65.4 bar)
Toxicity	
PEL /TLV	0.3 ppm
STEL	1 ppm
LC ₅₀	20 ppm
IDLH	200 ppm

ULSI Metals Specifications

ELEMENT	SYMBOL	GAS PHASE	LIQUID PHASE
Antimony	Sb	< 2	< 25
Cadmium	Cd	< 2	< 10
Calcium	Ca	< 2	< 100
Chromium	Cr	< 100	< 200
Cobalt	Co	< 2	< 10
Copper	Cu	< 2	< 100
Gallium	Ga	< 1	< 10
Germanium	Ge	< 2	< 10
Iron	Fe	< 50	< 500
Lead	Pb	< 2	< 10
Lithium	Li	< 2	< 10
Magnesium	Mg	< 10	< 100
Manganese	Mn	< 50	< 200
Molybdenum	Mo	< 20	< 100
Nickel	Ni	< 50	< 500
Potassium	K	< 2	< 10
Selenium	Se	< 2	< 10
Silicon	Si	< 10	< 50
Sodium	Na	< 10	< 200
Tin	Sn	< 10	< 50
Zinc	Zn	< 2	< 50

*all values in ppb, lot analysis only