

ELECTRONIC GASES

HYDROGEN CHLORIDE HCl

Hydrogen Chloride is a colorless, corrosive, toxic, nonflammable gas with a suffocating odor. It is very irritating to the mucous membranes. Hydrogen Chloride is heavier than air, fumes strongly in moist air, and has a great affinity for water. It is shipped as a liquefied gas under its own vapor pressure.

Container Information

CYLINDER SIZE	CONTENTS		Pressure@21.1°C Valve Outlet DOT Shipping Description:	613 psig CGA-330 Hydrogen chloride, Anhydrous, 2.3, UN 1050 Poison-Inhalation Hazard Hazard Zone C Poison Gas Corrosive
	LB	KG		
049	70	31.7	DOT Shipping Labels DOT Guide No. CAS Registry No.	15 7647-01-0
044	60	27.2		
016	20	9.1		

Specifications

COMPONENT	ULSI	VLSI	ELECTRONIC
HYDROGEN CHLORIDE	99.9995%min	99.999%min	99.995%min
Carbon Dioxide	< 2000 ppb	< 5 ppm	< 10 ppm
Nitrogen	< 2000 ppb	< 4 ppm	< 20 ppm
Oxygen + Argon	< 500 ppb	< 1 ppm	< 5 ppm
THC (as Methane)	< 500 ppb	< 1 ppm	< 2 ppm
Water	< 1000 ppb	< 1 ppm	< 15 ppm

SHELF LIFE: 2 years

Physical Properties

Molecular Weight	36.46
Flammability Limits in air	Nonflammable
Specific Gravity, Gas @ 70°F(21.1°C), 1 atm(Air=1)	1.27
Liquid Density @ Boiling Point	74.35lb/ft³ (1191g/l)
Density, Gas @ 70°F(21.1°C), 1 atm	0.094lbs/ft³ (1.51g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	10.6ft³/lb (0.662l/g)
Melting Point @ 75.1 psia (518 kPa)	-173.60°F (-114.24°C)
Boiling Point @ 1 atm	-121.2°F (-85.1°C)
Critical Temperature	124.5°F (51.4°C)
Critical Pressure	1197.7 psia (82.6 bar)
Toxicity	
PEL /TLV	5 ppm
LC ₅₀	3120 ppm
IDLH	100 ppm

ULSI Metals Specifications

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

*all values in ppb