

ELECTRONIC GAS

DICHLOROSILANE SiH₂Cl₂

Dichlorosilane is a highly toxic, colorless, flammable and liquefied gas with a sharp, pungent odor. It hydrolyses on contact with water to form hydrochloric acid. It is a silicon precursor gas used in chemical vapor deposition processes with oxygen, nitrogen or metallic (tungsten) compounds to deposit layers of silicon dioxide, silicon nitride or oxinitride or metal (tungsten) silicide layers. It is shipped as a liquefied gas under its own vapor pressure.

Container Information

CYLINDER SIZE	CONTENTS		Pressure @ 21.1°C Valve Outlet	9 psig CGA-678 / DISS-636
	LB	KG		
40LP(DCS)	88	40	DOT Shipping Description:	Dichlorosilane, 2.3, UN 2189 Poison Inhalation Hazard Hazard Zone B
016	20	9.1	DOT Shipping Labels	Poison Gas Flammable Gas
010	10	4.5	DOT Guide No. CAS Registry No.	29 4109-96-0

* Size 40LP(DCS) is a low pressure cylinder of dimensions of 22.5cm (O.D.) x 134cm (H).

Specifications

COMPONENT DICHLOROSILANE	ULSI 99.9% min	VLSI 99.0% min
Resistivity	< 1000 ohm-cm	< 150 ohm-cm
Acceptor (B + Al)	< 0.05 ppba	< 0.1 ppba
Donor (P + As)	< 0.2 ppba	< 0.2 ppba
Total Carbon	< 30 ppbw	< 5 ppmw
Other Chlorosilanes		< 0.8%
Monochlorosilane	< 300 ppm	
Trichlorosilane	< 300 ppm	
Tetrachlorosilane	< 300 ppm	

SHELF LIFE: 2 years

Physical Properties

Molecular Weight	101.01
Flammability Limits in air	4.1-98.8%
Specific Gravity, Gas @ 70°F(21.1°C), 1 atm(Air=1)	3.52
Density, Gas @ 70°F(21.1°C), 1 atm	0.26lbs/ft ³ (4.18g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	3.83ft ³ /lb (0.239l/g)
Boiling Point @ 1 atm	46.8°F (8.2°C)
Melting Point @ 1 atm	-187.6°F (-122.0°C)
Critical Temperature	348.8°F (176.0°C)
Critical Pressure	678.2 psia (46.76 bar)
Toxicity	
TLV-TWA	5 ppm

ULSI Metals Specifications

ELEMENT	SYMBOL	LIQUID PHASE
Iron	Fe	< 30
Nickel	Ni	< 2
Chromium	Cr	< 2

*all values in ppbw, lot analysis only