TRICHLOROSILANE $SiCl_3H$

Trichlorosilane is a corrosive, colorless, flammable liquid with a suffocating odor. Their vapors are irritating to the mucous membranes and form dense fumes when exposed to humid air. It hydrolyses rapidly in moist air, releasing hydrogen chloride. It is a source of silicon in chemical vapor deposition or epitaxial deposition of silicon. It is shipped in special stainless steel containers, capable of delivering either vapor or liquid.

Container Information

CYLINDER SIZE	CONTENTS			
	LB	KG		
SS 210LP	554	252	Pressure @ 21.1˚C	10.3 psia
SS 38LP	100	45.4	Valve Outlet (optional)	SWAGELOK, VCO, VCR
			DOT Shipping Description:	Trichlorosilane 4.3, UN 1295
			DOT Shipping Labels	Dangerous when wet Flammable Liquid Corrosive
			DOT Guide No.	38
			CAS Registry No.	10025-78-2

Specifications

COMPONENT TRICHLOROSILANE	VLSI 99.99% min
Resistivity	> 1000 ohm-cm
Acceptor (B + Al)	< 0.5 ppba
Donor (P + As + Sb)	< 0.2 ppba
Total Carbon	< 5 ppma
Other Chlorosilane	
Monochlorosilane	< 10 ppm
Dichlorosilane	< 20 ppm
Tetrachlorosilane	< 50 ppm

SHELF LIFE: 2 years

Physical Properties

Molecular Weight	135.45
Flammability Limits in air	7.0 - 83.0%
Density, Liquid @ Boiling Point, 1 atm	83.6lbs/ft³ (1.34g/ml)
Boiling Point @ 1 atm	89.4˚F (31.9˚C)
Melting Point @ 1 atm	-94˚F (-70˚C)
Critical Temperature	468˚F (242.5˚C)
Critical Pressure	499.7 psia (34.5 bar)
Toxicity (as HCl, a 3 to 1 ratio)	
PEL/TLV as HCl	5 ppm
LC_{50}	1040 ppm

VLSI Metals Specifications

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

*all values in ppbw, lot analysis only