

# ELECTRONIC GAS

## SILICON TETRACHLORIDE SiCl<sub>4</sub>

Silicon Tetrachloride is a corrosive, colorless, non-flammable liquid with a suffocating odor. The 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 used to plasma etch metals and in epitaxial silicon applications. It is shipped as a liquid in special stainless steel containers, capable of delivering either vapor or liquid.

Container Information			
CYLINDER SIZE	CONTENTS		Pressure @ 21.1°C 3.9 psia
	LB	KG	
SS 210LP	600	272	Valve Outlet (optional) SWAGELOK, VCO, VCR
SS 38LP	100	45.4	DOT Shipping Description: Silicon Tetrachloride 8, UN 1818
			DOT Shipping Labels DOT Guide No. CAS Registry No. Corrosive Liquid 39 10026-04-7

Specifications		
COMPONENT SILICON TETRACHLORIDE	VLSI 99.999% min	ELECTRONIC 99.94% min
Resistivity	> 300 ohm	> 300 ohm
Boron	< 0.2 ppba	< 0.2 ppba
Donor (P + As)	< 1 ppba	< 1 ppba
Total Carbon	< 1 ppba	< 1 ppba
Other Chlorosilanes		< 600 ppm
Monochlorosilane	< 2 ppm	
Dichlorosilane	< 2 ppm	
Trichlorosilane	< 2 ppm	

**SHELF LIFE:** 2 years

Physical Properties	
Molecular Weight	169.89
Flammability Limits in air	Non-flammable
Density, Liquid @ 70°F(21.1°C), 1 atm	92.5lbs/ft <sup>3</sup> (1.48g/l)
Boiling Point @ 1 atm	135.1°F (57.3°C)
Melting Point @ 1 atm	-93°F (-69.4°C)
Critical Temperature	453°F (234.0°C)
Critical Pressure	543.7 psia (37.6 bar)
Toxicity (as HCl, a 4 to 1 ratio)	
PEL/TLV as HCl	5 ppm
LC <sub>50</sub>	750 ppm
IDLH	100 ppm

VLSI Metals Specifications		
COMPONENT	SYMBOL	LIQUID PHASE
Aluminium	Al	< 1
Chromium	Cr	< 1
Cobalt	Co	< 2
Copper	Cu	< 1
Iron	Fe	< 5
Manganese	Mn	< 1
Nickel	Ni	< 1
Zinc	Zn	< 2

\*all values in ppbw, lot analysis only