

# ELECTRONIC GAS

## SILICON TETRAFLUORIDE SiF<sub>4</sub>

Silicon Tetrafluoride is a colorless, toxic, non-flammable gas with a suffocating odor. It is irritating to the mucous membranes. Silicon Tetrafluoride forms fumes in humid air, and hydrolyses rapidly to form hydrofluoric acid. It is used in ion implantation and in conjunction with silane for the plasma deposition of fluorinated silica. It is also used to etch metal silicides, silicon and polysilicon film with good selectivity. It is shipped as a free gas, and the contents vary with the pressure.

### Container Information

CYLINDER SIZE	CONTENTS		Pressure @ 21.1°C Valve Outlet DOT Shipping Description:	a, b1000 psig, c800 psig CGA-330 / DISS-642 Silicon Tetrafluoride, 2.3, UN 1859 Poison-Inhalation Hazard Hazard Zone D Poison Gas Corrosive 16 7783-61-1
	LB	KG		
e044	50	22.7	DOT Shipping Labels  DOT Guide No. CAS Registry No.	
b016	18	8.2		
c7X	105g			

### Specifications

COMPONENT SILICON TETRAFLUORIDE	VLSI 99.998% min	ELECTRONIC 99.99% min
Carbon Dioxide	< 1 ppm	< 10 ppm
Carbon Monoxide	< 0.5 ppm	< 10 ppm
Nitrogen	< 3 ppm	< 50 ppm
Oxygen	< 1 ppm	< 20 ppm
THC (as Methane)	< 10 ppm	< 10 ppm
Arsenic	< 0.5 ppm	
Boron	< 0.5 ppm	
Phosphorous	< 0.5 ppm	

**SHELF LIFE:** 2 years

### Physical Properties

Molecular Weight	104.08
Flammability Limits in air	Non-flammable
Specific Gravity, Gas @ 70°F(21.1°C), 1 atm(Air=1)	3.55
Density, Gas @ 70°F(21.1°C), 1 atm	0.266lbs/ft <sup>3</sup> (4.26g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	3.71ft <sup>3</sup> /lb (0.231l/g)
Sublimation Point @ 1 atm	-138.6°F (-94.8°C)
Melting Point @ 1 atm	-140.3°F (-95.7°C)
Critical Temperature	6.5°F (-14.2°C)
Critical Pressure	538.8 psia (37.2 bar)
Toxicity (as HF, a 4 to 1 ratio)	
PEL/TLV	3 ppm
STEL	6 ppm
LC <sub>50</sub>	450 ppm
IDLH	20 ppm