

# ELECTRONIC GAS

## SILANE SiH<sub>4</sub>

Silane is a non-corrosive, colorless, toxic, spontaneously flammable gas with a repulsive, choking odor, which may form explosive mixture in air. It is used as a silicon precursor in chemical vapor deposition of silicon dioxide, silicon nitride, polysilicon epitaxial silicon and amorphous silicon film. It is shipped as a compressed gas in high pressure steel cylinders.

Container Information			
CYLINDER SIZE	CONTENTS		Pressure @ 21.1°C *1370 psig, <sup>b</sup> 1000 psig
	LB	KG	
*049	30.8	14	Valve Outlet CGA-350 / DISS-632 DOT Shipping Description: Silane, 2.1, UN 2203
<sup>b</sup> 044	22.0	10	DOT Shipping Labels DOT Guide No. CAS Registry No. Flammable Gas 17 7803-62-5

Specifications			
COMPONENT SILANE	ULSI 99.9999% min	VLSI 99.9995% min	ELECTRONIC 99.999% min
Typical Resistivity	> 10000 ohm-cm	> 5000 ohm-cm	> 2500 ohm-cm
Carbon Dioxide	< 100 ppb	< 500 ppb	< 1 ppm
Carbon Monoxide	< 50 ppb	< 250 ppb	< 1 ppm
Chlorosilane	< 100 ppb	< 500 ppb	< 0.1 ppm
Nitrogen	< 300 ppb	< 1000 ppb	< 2 ppm
Oxygen + Argon	< 100 ppb	< 500 ppb	< 3 ppm
THC (as Methane)	< 150 ppb	< 1000 ppb	< 0.5 ppm
Water	< 50 ppb	< 250 ppb	< 1 ppm

**SHELF LIFE:** 2 years

Physical Properties	
Molecular Weight	32.12
Flammability Limits in air	Pyrophoric
Specific Gravity, Gas @ 70°F(21.1°C), 1 atm(Air=1)	1.11
Density, Gas @ 70°F(21.1°C), 1 atm	0.0827lbs/ft <sup>3</sup> (1.32g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	12.09ft <sup>3</sup> /lb (0.755l/g)
Melting Point @ 75.1 psia (518 kPa)	-301°F (-185°C)
Boiling Point @ 1 atm	-168.7°F (-111.5°C)
Critical Temperature	25.8°F (-3.4°C)
Critical Pressure	702.5 psia (48.4 bar)
Toxicity	
PEL/TLV	5 ppm
LC <sub>50</sub>	19000 ppm