

# DICHLOROSILANE - (SiH<sub>2</sub>Cl<sub>2</sub>)

# Ultraplus - 2.7

<b>DESCRIPTION :</b> A colorless, toxic, flammable, corrosive liquid shipped at its vapor pressure of 0,6 Barg at 21° C.	<b>APPLICATIONS :</b> Growth of epitaxial and polycrystalline silicon; chemical vapor deposition of silicon dioxide and nitride, and tungsten silicide. Dichlorosilane 2.7 can be especially useful for high-purity depositions such as epi for CMOS, which requires very low carbon and metallic impurities.	<b>ADR Item No.</b> : 2, 2 TFC
		<b>ADR</b> Label 2.3 Toxic gas Label 2.1 Flammable gas Label 8 Corrosive substance
<b>MSDS REFERENCE</b> : 043		<b>CHEMICAL ABSTRACTS</b> : 4109-96-0
		<b>UN No.</b> : 2189

PRODUCT		PRESSURE BARG	VALVE TYPE	VALVE OUTLET DIN 477 No	VALVE MATERIALS OF CONSTRUCTION
CYLINDER	CONTENTS				
10SSL	9 kg	0,6	Diaphragm	5	316L SS
50SSL	43 kg	0,6	Diaphragm	5	316L SS

PRODUCT CHARACTERISTICS	PRAXAIR SPECIFICATIONS	METHOD OF ANALYSIS (SEE KEY)
<b>MINIMUM PURITY (*)</b>	<b>99.7 %/w</b>	
Inert Gases	≤ 5000 ppm	C
Monochlorosilane (SiH <sub>3</sub> Cl) *	≤ 1000 ppm/w	A
Trichlorosilane (SiHCl <sub>3</sub> ) *	≤ 8000 ppm/w	A
Silicon Tetrachloride (SiCl <sub>4</sub> ) *	≤ 500 ppm/w	A
Carbon (C)	≤ 0,5 ppm/w	G
* Liquid Phase	Sum total of all impurities in the liquid phase not to exceed 3000 ppm.	
<b>METALS/DOPANTS</b>		
Aluminum (Al)	≤ 0,04 ppb/w	Note#2
Arsenic (As)	≤ 0,03 ppb/w	Note#2
Boron (B)	≤ 0,02 ppb/w	Note#2
Iron (Fe)	≤ 3 ppb/w	Note#2
Phosphorus (P)	≤ 0,05 ppb/w	Note#2
Resistivity	> 400 Ohm.cm	Note#3
See back for explanation of notes		

- ◆ Cylinder sizes, contents, valve types and valve connections other than those indicated above are available on request.
- ◆ All expressions for concentration are for gas phase, by volume unless otherwise noted.
- ◆ MSDS Ref.: More detailed Safety Information can be obtained from the Material Safety Data Sheet No. 043

Key to Analytical Techniques			
A	Gas Chromatograph with Thermal Conductivity Detector	D	Specific Oxygen Analyzer
B	Gas Chromatograph with Flame Ionization Detector	E	Specific Water Analyzer
C	Gas Chromatograph with Ultrasonic Detector	F	Total Hydrocarbon Analyzer
		G	Infrared
		H	Proprietary
		I	Gas Chromatograph with Helium Ionization Detector
		J	Flame Ionization with Methanizer
		K	Gas Chromatograph - Photo Ionization
		L	Gas Chromatograph - Flame Photometric
		M	Mass Spectrometry
		N	Wet Chemical
		O	Gas Chromatograph with Discharge Ionization Detector
		P	Gas Chromatograph with Methanizer Carbonizer
		Q	Gas Chromatograph with Electrolytic Conductivity
		R	Gas Chromatograph with Reduction Gas Analyzer
		S	Gaschromatograph with High Frequency Discharge Detector

**IMPORTANT**  
 Information prepared herein has been prepared by qualified experts within Praxair. While the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, Praxair makes no warranty or representation as to the suitability of the use of the information for any general or particular purpose. The information is provided with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair arising out of the use of the information contained herein exceed the fee established for providing such information.

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**EG 22-2.7**  
**08/2004**

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### Notes :

1. Other chlorosilanes are analyzed from liquid phase.
2. Measured by photoluminescence spectroscopy (MDL: 0,002 ppba) of an epitaxial layer grown from dichlorosilane. Iron is measured by graphite furnace atomic absorption.
3. Resistivity is measured via spreading resistance probe as described in ASTM method F525-88.
4. Inert gases defined as nitrogen and argon.