

Deuterated Silane, Si²H₄, SiD₄.



Semiconductor Grade Chemical Purity: $\geq 99.99\%$
 Isotopic Enrichment: ≥ 99 atom%

Deuterated Silane is used in Gigabyte DRAM production as a source of silicon without hydrogen, where the hydrogen that is typically incorporated in the crystal lattice, is detrimental to the high-speed operation of the gate. The heavier deuterium within the lattice provides a “mass barrier” to the Hot Electron Effect induced damage, thus increasing device lifetime. Deuterated Silane is a pyrophoric, toxic gas, with a TLV of 0.5 ppm. Deuterated Silane is also used in a variety of research applications to allow determination of hydrogen thermodynamics and incorporation rates.

Physical and chemical properties

Chemical Purity	$\geq 99.99\%$
Isotopic enrichment	≥ 99 Atom%
Chemical Formula	Si ² H ₄ , SiD ₄
Molecular weight	36.15
Gas density @ 0°C (32°F)	0.0899 Lb/ft ³ (1.44 Kg/m ³)
Boiling point @ 1 atm	-112°C (-169°F)
Freezing/melting point @ 1 atm	-184.7°C (-300.5°F)
Specific gravity @ 21.1°C (70°F) and 14.7 Psia (air = 1)	1.2
Solubility in water @ 20°C (68°F)	Negligible
Specific volume (ft ³ /lb)	12.0
Vapor pressure @ -122.2°C (-188°F) psig	7.73

Maximum Impurities

COMPONENT	CONCENTRATION (PPMV)
Argon + Oxygen	<5.0
Carbon Dioxide	<1.0
Carbon Monoxide	<1.0
Chlorosilanes	<5.0
Deuterium	<100.0
Deuterated Disilane	<20.0
Deuterated Methane	<5.0
Moisture (Incl. D2O)	<1.0
Nitrogen	<5.0

Cylinder Specifications*			Contents		Pressure	
Cylinder	Valve outlet options		Grams	Liters	Psig	bar
4A	CGA 350	DISS 632	1350	900	1050	73.4
4A	CGA 350	DISS 632	150	100	210	15.4

*A large variety of cylinder sizes and valve options are available.
Please inquire about specific packaging needs.

U.S. Shipping information

The following information is for U.S. domestic shipments only.

Proper shipping name	Silane, compressed (Deuterated Silane)
CAS #	13537-07-0
Hazard class number and description:	2.1 (Flammable Gas)
UN identification number	UN 2203
DOT label(s) required	Flammable Gas

Linde Electronics and Specialty Gases

One Greenwich Street, Suite 100, Stewartville, NJ 08886

Phone +1.908.329-9700 or +1.800.932-0624, Fax +1.908.329-9740, www.lindeus.com