

Deuterated Silane SiD₄

Giga Class Grade: 99.99%

Isotopic Enrichment 98.0%



Description

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 5.0 ppm. Deuterated Silane is also used in a variety of research applications to allow determination of hydrogen thermodynamics and incorporation rates.

Physical Constants for SiD ₄	
Chemical formula	SiD ₄
Molecular weight	36.149

Physical Constants for SiH ₄	
Chemical formula	SiH ₄
Molecular weight	32.118
Specific volume @ +70°F (+21.1°C)	12.05 ft ³ /lb, 0.752 m ³ /kg
Flammability range	Pyrophoric
Critical pressure	702.42 psia, 48.43 bar
Critical temperature	+25.79°F, -3.45°C
Specific gravity @ 70°F, 1 atm (Air=1)	1.109

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. D ₂ O)	<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

*Additional cylinder sizes and/or valve outlets are available.

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