Gelest
Enabling Your Technology

Industry Leader in Synthesis & Manufacturing of Precursors for CVD & ALD Silicon Nitride

Custom Designed Silicon Precursors Provide Critical Advantages

Precursor Features	Precursor Benefits
Gas or liquid state with high vapor pressure	• Ensures accuracy and control in transport and delivery into the ALD or CVD processing chamber
High thermal stability and good chemical integrity	• Strong resiliency to breakdown during storage, transport, and delivery into the deposition reactor
High reactivity with ability to undergo rapid and clean decomposition	• Clean elimination of unwanted ligands and undesirable attachments lead to high purity SiN • Requires low activation energy in the presence of ammonia or nitrogen-hydrogen to yield pure SiN without the need for plasma activation

Industry Leader With Expert Capabilities

- Vertically-integrated leader in synthesis, manufacturing and supply of precursors
- High volume production with Ship-To-Control quality management
- Precursors packaged in leak and spill-proof vessels tailored to clients specifications
- A fully integrated on-site demonstration laboratory for proof of concept work and joint development projects with clients

- In-house competencies provide critical data for functionality links between precursor structure, processing parameters and resulting film properties [1,2]

1. Kaloyeros, A. *et al ECS Journal of Solid State Science and Technology*, 6(10) P691-P714 (2017)
2. Arkles, B. *et al Solid State Technologies*, January/February 2018, pg 22-24

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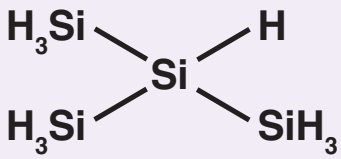
SiN Precursor
06/19
Rev. 0

Broad Spectrum of Inorganic and Organic Silicon Precursors Designed For ALD and CVD of Silicon Nitride for the Semiconductor Industry

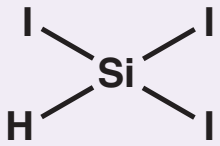
Product Code	Name	Formula	MW	Form	VP (°C/Torr)	BP (°C)	MP (°C)	Density
Perhydridosilanes								
SIS6950.4	Silane, in nitrogen	SiH_4	32.12	gas	-112/775	-112	-185	0.680
SID4594.0	Disilane	Si_2H_6	62.22	gas	21.1/2586	-14.5	-132	0.686
SIT8709.6	Trisilane	Si_3H_8	92.32	liquid	21.1/95.5	52.9	-117	0.743
SIT7880.0	n-Tetrasilane	Si_4H_{10}	122.42	liquid	20/22	106	-85 to -95	0.825
SII6463.4	Isotetrasilane	Si_4H_{10}	122.42	liquid	20/25	101	-99	0.793
SIN6597.07	Neopentasilane	Si_5H_{12}	152.52	liquid	25/15	132-134	<-40	0.805
Hydridohalosilanes								
SIC2414.0	Monochlorosilane	SiH_3Cl	66.56	gas	25/4900	-30.4	-118	1.145
SID3368.0	Dichlorosilane	SiH_2Cl_2	101.01	gas	-34/100	8.3	-122	1.22
SID3520.1	Diiodosilane	SiH_2I_2	283.91	liquid	55/25	149-150	-1	2.834
SIT8378.56	Triiodosilane	$SiHI_3$	409.81	liquid	95/12	220	8	3.314
Halosilanes								
SIT7085.1	Tetrachlorosilane	$SiCl_4$	169.90	liquid	20/194	57.6	-70	1.481
SIH5905.1	Hexachlorodisilane	Si_2Cl_6	268.89	liquid	85/109	144-146	-1	1.562
SIO6601.0	Octachlorotrisilane	Si_3Cl_8	367.88	liquid	90/10	213-215	-67	1.610
SIT7050.0	Tetrabromosilane	$SiBr_4$	347.70	liquid	0/1.8	154	5	2.772
SIT7123.0	Tetraiodosilane	SiI_4	535.70	solid	125/-30	287-288	120-121	4.198
Aminosilanes								
SIT8715.8	Trisilylamine	Si_3H_9N	107.33	liquid	0/110	52	-106	0.895
SIB1069.0	Bis(diethylamino)silane	$SiH_{22}C_8N_2$	174.36	liquid	70/30	188-189	<0	0.804
SID2795.0	Bis(t-butylamino)silane	$SiH_{22}C_8N_2$	174.36	liquid	25/1.15	167	<-50	0.816
SIT8714.0	Tris(dimethylamino)silane	$SiH_{19}C_6N_3$	161.32	liquid	4/16	145-148	-90	0.838
SIT8715.82	Tris(isopropylamino)silane	$SiH_{25}C_9N_3$	203.40	liquid	25/1	165-166		
SIT7276.0	Tetrakis(dimethylamino)silane	$SiH_{24}C_8N_4$	204.39	liquid	75/19	180	-2	0.885
SIT8384.2	Tri(isopropyl)cyclotrisilazane	$Si_3C_9H_{27}N_3$	261.59	liquid	67/1.8	220-224	-69 to -71	0.919
SIT7542.0	Tetramethyldisilazane	$Si_2C_4H_{15}N$	133.34	liquid	25/55	99-100	<-60	0.766

Perhydridosilanes



SII6463.4

Hydridohalosilanes



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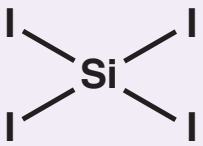
Halosilanes



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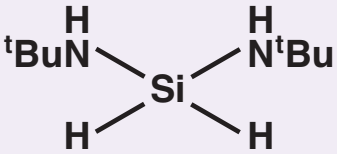
Aminosilanes



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