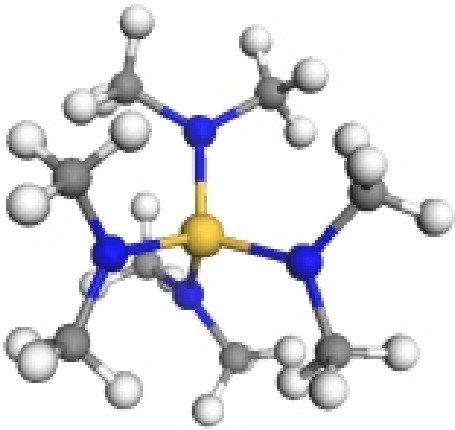


ALOHA™ CVD/ALD Materials



4DMAS

Tetrakis(dimethylamino)Silane

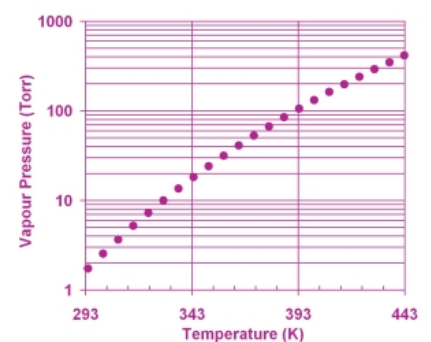
$\text{Si}[\text{N}(\text{CH}_3)_2]_4$

CAS n° 1624-01-7

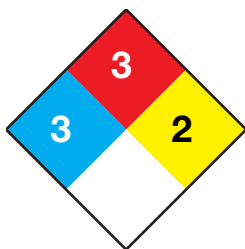
- 4DMAS can be used for the deposition of various silicon containing films, like SiO_2 and SiN , and more commonly as a silicon source for mixed oxides in high-k materials, such as $\text{Hf}_x\text{Si}_y\text{O}_z$.
- 4DMAS can be used both in ALD or MOCVD mode for the deposition of mixed oxide high-k's.
- 4DMAS is a colourless liquid that reacts mildly in moist air, and rapidly with water, with the evolution of dimethylamine and silicon oxide/hydroxide formation. Handling in perfectly dried piping and components is essential for high-performance, low particle processing.
- 4DMAS is the least reactive and most stable aminosilane, with the highest decomposition and deposition temperature.
- Like for most of the ALOHA advanced products, each canister of 4DMAS is supplied with a BALAZS CoA ensuring strict compliance with the specifications. Please consult www.balazs.com for more information.

Physical Chemical Properties

Physical Property	
Molecular Weight	205.49
Physical State	Liquid
Colour	Colourless
Boiling Point	180°C
Melting Point	16°C
Vapour Pressure	4 Torr @ 40°C
Specific Gravity	0.885 g.cm ⁻³



Hazard Rating



HMIS

Health: 3
Flammability: 3
Reactivity: 2

Upon hydrolysis, 4DMAS generates dimethylamine, which is highly flammable (LEL = 2.8%, UEL = 14.4%)

- The product should be handled considering that the major by-product in case of air exposure is dimethylamine. Please consult the ALOHA MSDS of 4DMAS for emergency response and PPE prior to material usage.
- All materials in contact with 4DMAS should be compatible to amines. Please consult ALOHA for detailed materials recommendation.

Packaging & Dispensing System

- 4DMAS can be packaged in a variety of canisters depending on the application.
- For on-board applications, 4DMAS is usually supplied in 1200, 1800 or 2500 ml canisters with various valving and dip-tube configurations. Multipoint or continuous level sensing systems can also be customized to meet each specific requirements. ALOHA's on-board canisters have all-metal construction and are cleaned and dried by state of the art techniques. 4DMAS can also be filled in properly documented customer-supplied canisters.
- For remote refill of POU bubblers or DLI systems, 4DMAS is available in SEMI F66-1101 and F96-0704 compliant canisters of 5, 3, 2 and 1 Gallons.
- Since 4DMAS has a relatively high vapour pressure at room temperature, the solvent purge option for the Air Liquide CANDI system is not mandatory. It is however recommended to reduce the canister changeover time. ALOHA's UHP Hexane or Octane are appropriate solvents. For the cleaning of on-board manifold and direct exhaust to the tool, specific high volatility solvent can be proposed.



Transport Information

- Proper shipping name: Organometallic substance, water reactive, flammable, n.o.s.(Tetrakis(Dimethylamino)Silane)
- CAS n° 1624-01-7
- UN Number: 3399
- Class/division: 4.3
- Package group: II
- Hazard Labels required : Class 4.3 (Dangerous When Wet), Class 3 (Flammable)

