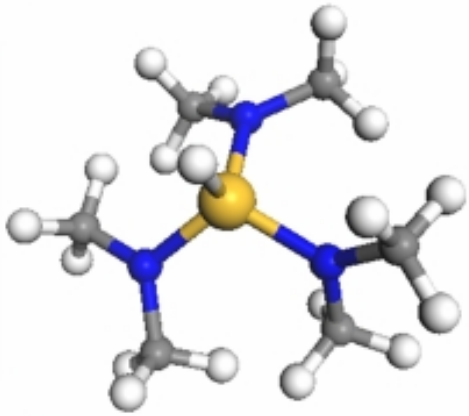


ALOHA™ CVD/ALD Materials



3DMAS

Tris(dimethylamino)Silane

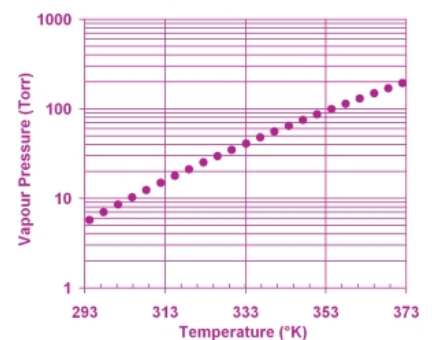
$\text{SiH}[\text{N}(\text{CH}_3)_2]_3$

CAS n° 15112-89-7

- 3DMAS 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 $\text{Hf}_x\text{Si}_y\text{O}_z$.
- 3DMAS can be used both in ALD or MOCVD mode for the deposition of mixed oxide high-k's.
- 3DMAS 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.
- 3DMAS is slightly more reactive than 4DMAS, with a lower decomposition and deposition temperature, and faster decomposition when exposed to air.
- Like for most of the ALOHA advanced products, each canister of 3DMAS 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	161.32
Physical State	Liquide
Colour	Colourless
Boiling Point	148°C
Melting Point	-90°C
Vapour Pressure	7,1 torr @ 25°C
Specific Gravity	0.85 g/cm ³

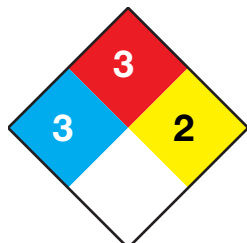


ALOHA Specifications

Parameter	Unit	Specification
Assay	%	>99,5
Water Content	ppm	Reacts
Total Chloride	ppm	<=5

Please consult ALOHA™ for detailed metal specifications. This product come under low volume manufacturing control plan.

Hazard Rating



HMIS

Health: 3

Flammability: 3

Reactivity: 2

Upon hydrolysis, 3DMAS 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 3DMAS for emergency response and PPE prior to material usage.
- All materials in contact with 3DMAS should be compatible to amines. Please consult ALOHA for detailed materials recommendation.

Packaging & Dispensing System

- 3DMAS can be packaged in a variety of canisters depending on the application.
- For on-board applications, 3DMAS 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. 3DMAS can also be filled in properly documented customer-supplied canisters.
- For remote refill of POU bubblers or DLI systems, 3DMAS is available in SEMI F66-1101 and F 96-0704 compliant canisters of 5, 3, 2 and 1 Gallons.
- Since SAM.32 has a relatively high vapour pressure at room temperature, the solvent purge option for the Air Liquide CANDI system is not mandatory. When used, 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.(Tris(Dimethylamino)Silane)
- CAS n° 15112-89-7
- UN Number: 3399
- Class/division: 4.3
- Package group: II
- Hazard Labels required : Class 4.3 (Dangerous When Wet), Class 3 (Flammable)



Air Liquide ALOHA is providing a complete advanced precursor solution. ALOHA portfolio covers low k, high k, barrier, metal gate, electrode, including some proprietary solutions for SiN, metals and High k. Manufacturing electronic devices with this material may be claimed in certain patents and seller hereby disclaims any liability as to the use of this material made by buyer.

For more information please contact: aloha@airliquide.com or your local Air Liquide representative.



ALOHA
ELECTRONICS PERFORMANCE MATERIALS