

Deuterated Ammonia, N²H₃, ND₃.



Semiconductor Grade: ≥99.998%
Isotopic Enrichement: ≥99 atom%

Deuterated Ammonia is used in Gigabyte DRAM production as a source of deuterium in silicon nitride and silicon oxynitride passivation films. The heavier mass of the deuterium is desired to enhance the lifetime of specific transistors when the diffusion of the deuterium portion replaces lost hydrogen. Deuterated Ammonia is a toxic, corrosive, flammable gas with a TLV of 25 ppm.

Physical and chemical properties

Molecular weight	20.054
Gas density @ 21.1°C (70°F)	0.0519 lb/ft ³ (0.831 kg/m ³)
Boiling point @ 1 atm	-30.9°C (-23.62°F)
Freezing/melting point @ 1 atm	-78°C (-108°F)
Specific gravity (air = 1) @ 25°C (77°F)	0.5970
Solubility in water vol/liq @ 15.5°C (68°F)	Soluble
Specific volume @ 0°C (32°F)	22.6 lb/ft ³ (1.452 kg/ m ³)
Critical pressure	113 bar
Odor threshold	0.6 - 53 ppm (detection) [for Ammonia, Anhydrous]
Vapor pressure @ 21.1°C (70°F)	114.1 psig (786.7 kPa) [for Ammonia, Anhydrous]

Appearance, odor and state

Deuterated Ammonia is a suffocating, pungent-smelling, toxic, corrosive, liquefied gas. This gas is lighter than air and fumes strongly in moist air, producing a cloud of ammonium hydroxide mist.

Maximum Impurities

COMPONENT	CONCENTRATION (PPMV)
Argon + Oxygen	<1.0
Carbon Dioxide	<1.0
Carbon Monoxide	<1.0
Deuterated Methane	<2.0
Moisture (Incl. D2O)	<2.0
Nitrogen	<10.0

Cylinder Specifications*			Contents		Pressure	
Cylinder	Valve outlet options		Pounds	KG	Psig	bar
2A	CGA 660	DISS 720	35.7	16.2	114	8.86
3A	CGA 660	DISS 720	18.5	08.4	114	8.86
4A	CGA 660	DISS 720	8.4	03.8	114	8.86

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

U.S. Shipping information

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

Proper shipping name	Ammonia, anhydrous (Deuterated Ammonia)
Hazard class number and description:	2.2 (Non-Flammable Gas)
UN identification number	UN 1005
Packing group	Not applicable.
DOT label(s) required	Non-Flammable Gas

Linde Electronics and Specialty Gases

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