

ELECTRONIC GAS

GERMANE GeH₄

Germane is a colorless, toxic and flammable gas with a pungent odor. It may spontaneously ignite in air. It is compatible with hydrogen, argon, helium, and nitrogen, and is often shipped as a mixture with these gases. It is used for the deposition of epitaxial and amorphous silicon - germanium, alloys and as a component for PECVD of (Si, Ge)O₂ films with controllable refractive index for photonic applications. It is normally shipped as a free gas, instead of as a liquefied gas under its own pressure.

Container Information			
CYLINDER SIZE	CONTENTS	Pressure @ 21.1°C	^a 130, ^b 118 or ^c 104 psig
	GRAMS	Valve Outlet DOT Shipping Description:	CGA-350 / DISS-632 Germane, 2.3, UN 2192 Poison-Inhalation Hazard Hazard Zone B
A030 ^a	1,000	DOT Shipping Labels	Poison Gas, Flammable Gas
A016 ^b	500	DOT Guide No.	18
A07 ^c	200	CAS Registry No.	1590-87-0

Specifications	
COMPONENT GERMANE	ELECTRONIC 99.999% min (exc. digermane and hydrogen)
Carbon Dioxide	< 2 ppm
Carbon Monoxide	< 1 ppm
Digermane	< 20 ppm
Hydrogen	< 50 ppm
Nitrogen	< 2 ppm
Oxygen + Argon	< 0.5 ppm
THC (as Methane)	< 1 ppm
Trigermane	< 1 ppm
SHELF LIFE: 1 year	

Physical Properties	
Molecular Weight	76.64
Flammability Limits in air	Pyrophoric
Specific Gravity, Gas @ 70°F(21.1°C), 1 atm(Air=1)	2.65
Density, Gas @ 70°F(21.1°C), 1 atm	0.198lbs/ft ³ (3.17g/l)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	5.05ft ³ /lb (0.315l/g)
Melting Point @ 75.1 psia (518 kPa)	-266.6°F (-165.9°C)
Boiling Point @ 1 atm	-127°F (-88.4°C)
Critical Temperature	94.7°F (34.8°C)
Critical Pressure	805.3 psia (55.5 bar)
Toxicity	
TLV-TWA	0.2 ppm
LC ₅₀	50 ppm