

monosilane, hydrosilicon

Marking

CAS

7803-62-5
UN 2203 SILANE, 2.1, (B/D)

Characterization acc. ADR

Cylinder Marking



Shoulder color: red

Essential properties

liquified gas, heavier than air, colorless, odorless, flammable

Symbols of risks



Physical Properties

molecular weight	32,1171 kg/kmol
gas density at 0 °C and 1,013 bar	1,44 kg/m ³
density ratio to air	1,1161

For additional safety information see safety data sheet *-SIH4-107

Valves / Manifolds

Valve connection

acc. to national standards
with flow-restrictor; also as pneumatic valve



Recommended Manifolds

Spectropur

Specification / receptacles		Silane UHP	
Composition			
SiH ₄	≥	99.99	Vol.-%
Impurities			
CO ₂	≤	1	ppmv
CO	≤	1	ppmv
N ₂	≤	2	ppmv
H ₂	≤	50	ppmv
HC	≤	0.5	ppmv
O ₂ + Ar	≤	1	ppmv
H ₂ O	≤	2	ppmv
Cylinder / Contents			
F 10 2kg		2.0	kg
F 50 15kg		15.0	kg

Remarks

Delivery only with end user statement!
No delivery to private person!

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Description

Colourless, self-igniting, toxic gas. In air silane incinerates to hydrogen containing silicon-oxygen compounds; surplus of oxygen leads to white SiO_2 . While handling of silane attention has to be paid on strictly exclusion of oxygen in the used apparatus. Reacts with bases under release of hydrogen and formation of the corresponding silicates (disposal of residual silane).

Materials

Cylinders and valves: any usual materials.

Normalized / annealed steel only under observance of the required max. strength properties; danger of hydrogen embrittlement.

Seals: PTFE, PCTFE, PVDF, IIR, CR, FKM, EPDM

Physical Properties			
molecular weight	32,1171 kg/kmol	vapour pressure at 20°C	
critical point		gas density at 0°C and 1,013 bar	1,44 kg/m ³
temperature	269,7 K	density ratio to air	1,1161
Pressure	48,448 bar	gas density at 15°C and 1 bar	1,35 kg/m ³
density		conversion factor	
triple point		liquid at Ts to m ³ gas (15°C, 1 bar)	
temperature	86,75 K	virial coefficient	
Pressure		Bn at 0°C	-7*10 ⁻³ bar ⁻¹
boiling point		B30 at 30°C	-5*10 ⁻³ bar ⁻¹
temperature	161,8 K; -111 °C	gaseous state at 25°C and 1 bar	
liquid density	0,5828 kg/l	specific heat capacity cp	1,3314 kJ/kg K
evaporation heat	363 kJ/kg	thermal conductivity	178*10 ⁻⁴ W/m K
		dynam. viscosity	9,93*10 ⁻⁶ Ns/m ² (0 °C)