

Marking

CAS-Number 1333-74-0

Characterization acc. ADR UN 1049, Hydrogen, compressed, 2.1
Class 2, 1F

Cylinder Marking



shoulder:
red

Essential properties

Colourless, odorless, flammable gas, compressed, very much lighter than air

Symbols of Risks



flammable



gas, compressed

Physical Properties

molecular weight: 2,0158 kg/kmol
gas density at 0°C and 1,013 bar: 0,0899 kg/m³
density ratio to air: 0,0695

For additional safety information see Material-/safety data sheet No. *-H2-067A

Valves / Manifolds

Valve connection 200 bar: acc. to national standards
300 bar: acc. to ISO 5145: W 30 x 2 LH

Recommended Manifolds Spectrolab FM 51 / FM 52exact
Spectrocem FE 51 / FE 52exact



Specifications / Forms of delivery					
		5.0	5.6 *	ECD	6.0
Composition					
H ₂	>	99,999	99,9996	99,9996	99,9999
Impurities					
H ₂ O	<	5	2	2	0,5
O ₂	<	1	1	1	0,2
N ₂	<	5	2	2	0,2
THC (as CH ₄)	<	0,1	0,1	0,1	0,1
CO + CO ₂	<	0,1	0,1	0,1	0,1
hal. HC	<	-	-	1	-
Cylinders / Contents					
F 10 200 bar		1,8	-	-	1,8
F 50 200 bar		8,9	8,9	8,9	8,9
F 50 300 bar		12,6	-	-	-
B 12* F 50 200 bar		107,0	-	-	-
B 12* F 50 300 bar		151,3	-	-	-

Remarks

Applications:
Carrier gas in gas chromatography and fuel gas for flame ionisation detectors (FID)
shielding gas and cooling gas in metallurgy and glass industries

*: not available in each country

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Description

Colourless, odorless, flammable gas. Very much lighter than air. Forms highly explosive mixtures with oxygen or chlorine (detonating gas!). At high emanating velocities danger of self-ignition. The arising flame is nearly invisible.

detection detector for flammable gases

Safety data

Explosion Range 4,0 - 77 Vol. %
Ignition Temperature 560 °C

Materials

Cylinders and valves: any usual materials
Normalized / annealed steel only under observance of the demanded max. strength properties; danger of hydrogen embrittlement
Seals: PCTFE, PVDF, PA PE

Physical Properties			
molecular weight	2,0158 kg/kmol	vapour pressure at 20°C	
Critical Point		gas density at 0°C and 1,013 bar	0,0899 kg/m ³
temperature	33,19 K	density ratio to air	0,0695
Pressure	13,15 bar	gas density at 15°C and 1 bar	0,08409 kg/m ³
density	0,03012 kg/l	Conversion Factor	
Triple Point		liquid at Ts to m ³ gas (15°C, 1 bar)	
temperature	13,957 K	Virial Coefficient	
Pressure	0,072 bar	Bn at 0°C	0,6*10 ⁻³ bar ⁻¹
Boiling Point		B30 at 30°C	0,58*10 ⁻³ bar ⁻¹
temperature	20,39 K	Gaseous State at 25°C and 1 bar	
liquid density	0,07079 kg/l	specific heat capacity cp	14,3 kJ/kg K
evaporation heat	445,6 kJ/kg	thermal conductivity	1861 10 ⁻⁴ W/m K
		dynam. viscosity	8,92*10 ⁻⁶ Ns/m ²