Acetylene C_2H_2

also: Ethine

TECHNICAL GASES

Marking

CAS-Number 74-86-2

Characterization acc. ADR UN 1001, Acetylene, dissolved, 2.1 Class 2, 4 F

Cylinder Marking  shoulder: maroon

Essential properties

Colourless, in pure form odorless, flammable gas, exothermic self-ignition, dissolved in acetone or DMF, lighter than air

Symbols of Risks

 flammable

 gas, dissolved

Physical Properties

molecular weight:	26,038 kg/kmol
gas density at 0°C and 1,013 bar:	1,1775 kg/m³
density ratio to air:	0,9066
vapour pressure at 20°C:	43,36 bar

For additional safety information see Material-/safety data sheet No. *-C2H2-001

Valves / Manifolds

Valve connection acc. to national standards

Recommended Manifolds Spectrotec

Specifications / Cylinders			
		technical	
Composition			
C_2H_2	>	98	Vol.%
Impurities			
Cylinders / Contents			
F 20		3,0 - 4,0	kg
F 50		8,0 - 10,0	kg
B 12 * F 50		90,0 - 120,0	kg

Remarks

maximum output is limited due to technical reasons.

For reasons of stability acetylene is dissolved under pressure in a solvent (acetone or DMF). During withdrawal the gas contains solvent vapours.

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Version: 2.0.1

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Description

Impurities in acetylene like PH_3, H_2S, AsH_3 and NH_3 cause the typical odor("carbide-like") . In pure state colourless, slightly etherial smelling, strong narcotic acting gas. Under impact of energy (local heating, UV-radiation, pressure bumps) explosive disaggregation into the elements. Explosive acetylides are built up in contact with copper, silver, mercury and their salts and solutions.
Safe storing and transportation as dissolved gas under pressure in cylinders with a porous mass, imbued with acetone.

detection test tubes

Safety data

Explosion Range 2,3 - 78 Vol.%(above 78% decomposition)

Ignition Temperature 305 °C

Materials

Cylinders and Valves: any usual materials; except brass or copper(-alloys) with Cu> 70 %
Seals: PTFE, PCTFE, PVDF, PE, PP

Physical Properties			
molecular weight	26,038 kg/kmol	**vapour pressure at 20°C**	43,36 bar
Critical Point		**gas density at 0°C and 1,013 bar**	1,1775 kg/m³
temperature	308,33 K	**density ratio to air**	0,9066
Pressure	61,39 bar	**gas density at 15°C and 1 bar**	1,0996 kg/m³
density	0,231 kg/l	**Conversion Factor**	
Triple Point		liquid at Ts to m³ gas (15°C, 1 bar)	
temperature	192,60 K	**Virial Coefficient**	
Pressure	1,282 bar	Bn at 0°C	-8,4 * 10^{-3} bar^{-1}
Boiling Point		B30 at 30°C	-5,8 *10^{-3} bar^{-1}
temperature	189,35 K; -83,8 °C	**Gaseous State at 25°C and 1 bar**	
liquid density		specific heat capacity cp	1,687 kJ/kg K
evaporation heat	801,89 kJ/kg	thermal conductivity	215 *10-4 W/m K
		dynam. viscosity	10,46 * 10-6 Ns/m²

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