

PRODUCT DATA SHEET

Hydrogen (H₂)

Hydrogen is a colourless, odourless, flammable gas. It is supplied as a permanent gas at high pressure in metal cylinders.

Hazards

- High pressure compressed gas
- Forms explosive mixtures in air
- Asphyxiant in high concentrations
- Only gas that becomes warm when expanded
- Risk of static electricity sparking.

Classifications

Gas	Purity
Hydrogen technical	99,5%

Material Description	Mass (kg)	Cylinder Capacity (ℓ)	Pressure @ 20°C (Bar)	Valve Outlet Connection	Item Number
H ₂ TEC CYL 0,74 KG	0,74	50,0	200	5/8" BSPF left hand female	54-SH
H ₂ TEC MCP 15 X 0,74 KG	11,1	MCP	200	5/8" BSPF left hand female	54-MH15

Higher grades and purities of this product are available from Afrox. Specifications are included in the 'Special Products and Chemicals' section.

Physical Data

Appearance/odour	Colourless and odourless
Molecular weight	2,016
Specific volume at 21,1 °C and 101,325 kPa	11967,4 ℓ/kg
Boiling point at 101,325 kPa	-252,8°C
Critical temperature	-239,9°C
Relative density (air = 1) at 101,325 kPa and 25°C	0,0695
Density, gas at 101,325 kPa and 25°C	0,08235 kg/m ³
Flammable limits in air (by volume)	4,0 - 75%

Uses and Features

- Hydrogen finds wide use in the metallurgy field because of its ability to reduce metal oxides and prevent oxidation in the heat treating of certain metals and alloys (reducing atmospheres)
- Hydrogen is also extensively used in the manufacture of chemicals, plastics and in petroleum refining
- Hydrogen is widely used for the hydrogenation of vegetable and animal oils and fats
- Purified hydrogen is used in gas chromatography as a detector fuel and in semiconductor manufacture
- Not suitable for inflation of balloons.

Precautions in Use

- Use only approved ancillary equipment which is flameproof. Consult our Customer Engineering Services Department for assistance
- High pressure leaks can auto-ignite
- Caution – burns with an almost invisible flame. Use leak-detecting solutions for minor leaks
- Store away from oxidizing sources
- Use only in a well ventilated area
- Wear safety glasses, use leather/plastic safety gloves, wear overalls and safety shoes when handling cylinders
- Always use a regulator to connect to system
- Always open and close cylinder valve slowly
- Refer to MSDS for more information.

Material Compatibility

- Hydrogen is non-corrosive and so any common metals are acceptable provided the equipment is designed to withstand process pressure and temperature. Hydrogen embrittlement can occur under certain circumstances and needs to be allowed for in-design.

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