

Hydrogen gas

Bulk Chemicals and Intermediates | Technical Data Sheet

Synonyms

Hydrogen



Molecular formula	H ₂
Molecular weight	2.0
CAS number	1333-74-0
EINECS number	215-605-7

Specifications

Appearance	Clear, colourless compressed liquefied gas
Purity as H ₂	99.5% minimum

Physical properties

Boiling point	-252.8°C
Specific gravity	0.0696
Gas density	0.08342 kg/m ³
Specific volume	11.99 m ³ /kg

Description

Hydrogen is a clear, colourless compressed liquefied gas. It is highly inflammable and explosive.

Applications

Intermediate for chemicals

Packaging

Hydrogen is available in cylinders and banks.

Storage and handling

Cylinder storage locations should be well-protected, well-ventilated, dry and separate from combustible materials. Cylinders should never be allowed to reach a temperature exceeding 52°C. Hydrogen cylinders should be separated from oxygen cylinders or other oxidisers by maintaining a minimum distance of 20 feet. Cylinders should be stored upright with a valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage. Do not drag, roll, slide or drop cylinders. Use a suitable hand truck for cylinder movement.

Post 'No smoking' or 'Open flames' signs in storage areas. There should be no sources of ignition. All electrical equipment in storage and use areas should be explosion-proof. Storage areas must meet national electric codes for Class 1 hazardous areas. Do not open the hydrogen cylinder valve before connecting it since self-ignition may occur. Hydrogen is the lightest known gas and may get collected at the top of the building without proper ventilation. If the user experiences difficulty in operating the cylinder valve, discontinue use and contact supplier. Never strike an arc on a compressed gas cylinder or make the cylinder part of an electrical circuit. Always refer to the Safety Data Sheet (SDS) for detailed information on storage and handling.

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Safety

Provide natural or explosion-proof ventilation, adequate to ensure that the hydrogen does not reach its lower explosive limit of 4%. Air supply respirators are required in an oxygen-deficient atmosphere. Before entering the area, check for a flammable or oxygen-deficient atmosphere. Hand gloves, safety glasses and safety shoes are advised when handling cylinders. Always refer to the SDS for detailed information on safety.

First aid

Eye contact: Immediately flush eyes with water for at least 15 minutes. Hold the eyelids open and move the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

Skin contact: Adverse effects are not expected from this product.

Ingestion: Ingestion is not considered a potential route of exposure.

Inhalation: A person suffering from lack of oxygen should be shifted to fresh air. If the person is not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Spills and disposal

Evacuate all personnel from the danger area. Immediately cool the container with a water spray by keeping maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Stop the flow of gas if without risk. Do not attempt to dispose of residual or unused product in the cylinder.

Contact

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