



Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020

Section1: Manufacturer and Substance Identification:

CHEMFAB ALKALIS LIMITED

Gnanananda place

Kalapet

Puducherry- 605014

India.

CAS #: 1333-74-0

UN #: 1049

Formula: H₂

Molecular mass: 2.0

Formula: H₂

Molecular mass: 2.0

SECTION: 1. Product and company identification

Emergency Contact number:0413- 2655111-113

Email: chemfabalkalis@drroholings.com

Website: www.chemfabalkalis.com

AMAI CERN NO (Emergency Toll Free No): 1800-11-1735

SECTION 2: Composition/Information on ingredients

2.1. Substance

Name : Hydrogen, compressed

CAS No : 1333-74-0

Name	Product identifier	%
Hydrogen	(CAS No) 1333-74-0	99.9 (MIN)

SECTION 3 : Hazard identification

GHS-US classification

Flam. Gas 1 H220

Compressed

gas H280

Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020

2.2. Label Elements GHS-US labeling



Signal word (GHS-US) : DANGER

Hazard statements (GHS-US) : H220 - **EXTREMELY FLAMMABLE GAS**
 H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
 OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION
 CGA-HG04 - MAY FORM EXPLOSIVE MIXTURES WITH AIR
 CGA-HG08 - BURNS WITH INVISIBLE FLAME

SECTION 4: First Aid Measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician

SECTION 5: Fire Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide, dry chemical powder, water spray, fog.

5.2. Special hazards arising from the substance or mixture

Fire hazard : **EXTREMELY FLAMMABLE GAS.** The hydrogen flame is nearly invisible. Hydrogen has a low ignition energy; escaping hydrogen gas may ignite spontaneously. A fireball forms if the gas cloud ignites immediately after release. Hydrogen forms explosive mixtures with air and oxidizing agents.

Explosion hazard : **EXTREMELY FLAMMABLE GAS.** Forms explosive mixtures with air and oxidizing agents.

Reactivity : No reactivity hazard other than the effects described below.

SECTION 6: Accidental Release Measures



Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020

DANGER: EXTREMELY FLAMMABLE GAS. Forms explosive mixtures with air and oxidizing agents. Evacuate personnel to a safe area. Appropriate self-contained breathing apparatus may be required. Approach suspected leak area with caution. Remove all sources of ignition. if safe to do so. Reduce gas with fog or fine water spray. Stop flow of product if safe to do so. Ventilate area or move container to a well-ventilated area. Flammable gas may spread from leak. Before entering the area, especially a confined area, check the atmosphere with an appropriate device

SECTION 7: Handling and Storage

Precautions for safe handling

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents

Storage conditions

: Store only where temperature will not exceed 125°F (52°C). Post "No Smoking/No Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage

Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.



Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020

SECTION 8: Exposure Controls/Personal Protection:

8.2. Exposure controls

Appropriate engineering controls	: Use an explosion-proof local exhaust system. Local exhaust and general ventilation must be adequate to meet exposure standards. MECHANICAL (GENERAL): Inadequate - Use only in a closed system. Use explosion proof equipment and lighting.
Eye protection	: Wear safety glasses with side shields.
Respiratory protection	: An air-supplied respirator must be used while working with this product in confined spaces.
Thermal hazard protection	: None necessary.
Other information	: Consider the use of flame resistant anti-static safety clothing. Wear safety shoes while handling containers.

SECTION 9: Physical and Chemical Properties.

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Colorless gas.
Molecular mass	: 2 g/mol
Color	: Colorless.
Odor	: Odorless.
pH	: Not applicable.
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: -259.2 °C (-434.56°F)
Freezing point	: No data available
Boiling point	: -252.9 °C (-422.97°F)
Flash point	: No data available
Critical temperature	: -239.9 °C (-399.82°F)
Auto-ignition temperature	: 566 °C (1051°F)
Vapor pressure	: Not applicable.
Density	: 0.089 g/l (0.0056 lb/ft3) (at STP = 0°C and 1atm)
Relative gas density	: 0.07
Solubility	: Water: 1.6 mg/l
Oxidizing properties	: None.
Explosion limits	: 4 - 74 vol %

9.2. Other information

Gas group	: Compressed gas
Additional information	: BURNS WITH INVISIBLE FLAME

SECTION 10: Stability and Reactivity.

Reactivity

No reactivity hazard other than the effects described below.

10.2. Chemical stability



Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Can form explosive mixture with air. May react violently with oxidants.

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

10.5. Incompatible materials

Oxidizing agents. Lithium. Halogens.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological Information.

Acute toxicity : Not classified

Hydrogen, compressed (f)1333-74-0	
LC50 inhalation rat (ppm)	> 15000 ppm/1h
Hydrogen (1333-74-0)	
LC50 inhalation rat (ppm)	> 15000 ppm/1h

Aspiration hazard : Not classified

SECTION 12: Ecological Information.

12.1. Toxicity

Ecology - general : No ecological damage caused by this product.

12.2. Persistence and degradability

Hydrogen, compressed (1333-74-0)	
Persistence and degradability	No ecological damage caused by this product.
Hydrogen (1333-74-0)	
Persistence and degradability	No ecological damage caused by this product.

SECTION 13: Disposal Consideration.

SPILLAGE DISPOSAL

Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. Remove vapour with fine water spray.

SECTION 14: Transport Information:

In accordance with DOT



Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020

Transport document description : UN1049 Hydrogen, compressed, 2.1
 UN-No.(DOT) : UN1049
 Proper Shipping Name (DOT) : Hydrogen, compressed



DOT Special Provisions (49 CFR 172.102) : N89 - When steel UN pressure receptacles are used, only those bearing the "H" mark are authorized

SECTION 15: Regulatory Information:

UN Classification

UN Hazard Class: 2.1

NFPA Code: H0; F4; R0.

Occupational exposure limits

TLV (SIMPLE-ASPHYXIANT)

SECTION 16: Other Information:

The Information provided in this MSDS is given in good faith and is correct to the best of our knowledge and information at the date of Publication. It is designed only a guidance of safe handling, transportation, use and disposal. No Warranty is expressed or implied.

Contact: Section 1

Disclaimer:

This document is only controlled while on the Chemfab Alkalis Limited. website and a copy of this controlled version is available for download. Chemfab Alkalis Ltd, cannot assure the integrity or accuracy of any version of this document after it has been downloaded or removed from our website.

Revision History:

Revision	Effective date	Changed Date



Material Safety Data Sheet

Product Name: Hydrogen gas (Compressed)

Revision date: R1-01/11/2020