# International Chemical Safety Cards

## HYDROGEN

### HYDROGEN
- (cylinder)
- H₂
- Molecular mass: 2.0

**CAS #** 1333-74-0  
**RTECS #** MW8900000  
**ICSC #** 0001  
**UN #** 1049  
**EC #** 001-001-00-9

### FIRST AID/  
FIRE FIGHTING
- Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; (see notes) water spray, powder, carbon dioxide.

### TYPES OF  
HAZARD/  
EXPOSURE

| HAZARD/EXPOSURE | ACUTE HAZARDS/ SYMPTOMS | PREVENTION | FIRST AID/  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE</td>
<td>Extremely flammable. Many reactions may cause fire or explosion.</td>
<td>NO open flames, NO sparks, and NO smoking.</td>
<td>Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; (see notes) water spray, powder, carbon dioxide.</td>
</tr>
<tr>
<td>EXPLOSION</td>
<td>Gas/air mixtures are explosive.</td>
<td>Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools. Do not handle cylinders with oily hands.</td>
<td>In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.</td>
</tr>
</tbody>
</table>

### EXPOSURE

- **INHALATION**  
  - ON CONTACT WITH LIQUID: FROSTBITE.

- **SKIN**  
  - Cold-insulating gloves.  
  - Protective clothing.

- **EYES**  
  - Safety goggles, or face shield.

- **INGESTION**

### SPILLAGE DISPOSAL
- Evacuate danger area! Consult an expert! Ventilation. Remove vapour with fine water spray.

### STORAGE
- Fireproof. Cool.

### PACKAGING & LABELLING
- F+ symbol  
- R: 12  
- S: 9-16-33  
- UN Hazard Class: 2.1

SEE IMPORTANT INFORMATION ON BACK
HYDROGEN

PHYSICAL STATE; APPEARANCE:
ODOURLESS, COLOURLESS
COMPRESSED LIQUEFIED GAS

PHYSICAL DANGERS:
The gas mixes well with air, explosive mixtures are easily formed. The gas is lighter than air.

CHEMICAL DANGERS:
Heating may cause violent combustion or explosion. Reacts violently with air, oxygen, chlorine, fluorine, strong oxidants causing fire and explosion hazard. Metal catalysts, such as platinum and nickel, greatly enhance these reactions.

OCCUPATIONAL EXPOSURE LIMITS REPEATED EXPOSURE:
TLV not established

PHYSICAL PROPERTIES
Boiling point: -253°C
Relative vapour density (air = 1): 0.07
Flash point: flammable gas

Auto-ignition temperature: 500-571°C
Explosive limits, vol% in air: 4.76%

ENVIRONMENTAL DATA

NOTES
Addition of small amounts of a flammable substance or an increase in the oxygen content of the air strongly enhances combustibility. High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering area. No odour warning if toxic concentrations are present. Measure hydrogen concentrations with suitable gas detector (a normal flammable gas detector is not suited for the purpose). After use for welding, turn valve off; regularly check tubing, etc., and test for leaks with soap and water. The measures mentioned in section PREVENTION are applicable to production, filling of cylinders, and storage of the gas.

Transport Emergency Card: TEC (R)-20
NFPA Code: H0; F4; R0;

ADDITIONAL INFORMATION
INTERNATIONAL CHEMICAL SAFETY CARDS (WHO/IPCS/IL0)

ICSC: 0001

© IPCS, CEC, 1993

HYDROGEN

IMPORTANT LEGAL NOTICE:

Neither the CEC or the IPCS nor any person acting on behalf of the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use.