





<b>HYDROGEN</b>	<b>ICSC: 0001</b>
	<b>April 2014</b>
CAS #: 1333-74-0	
UN #: 1049	
EC Number: 215-605-7	

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Extremely flammable. Many reactions may cause fire or explosion. Gas/air mixtures are explosive.	NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools. Do not handle cylinders with oily hands.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with water spray, powder, carbon dioxide. In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

Use appropriate engineering controls.			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Dizziness. Headache. Lethargy. Suffocation.	Use ventilation.	Fresh air, rest.
<b>Skin</b>	ON CONTACT WITH GAS: FROSTBITE.	Cold-insulating gloves.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer immediately for medical attention.
<b>Eyes</b>	ON CONTACT WITH GAS: FROSTBITE.	Wear face shield.	ON FROSTBITE: rinse with plenty of water. Refer immediately for medical attention.
<b>Ingestion</b>			

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. Remove vapour with fine water spray.	<p>According to UN GHS Criteria</p>  <p><b>DANGER</b></p> <p>Extremely flammable gas Contains gas under pressure; may explode if heated</p> <p><b>Transportation UN Classification</b> UN Hazard Class: 2.1</p>
<b>STORAGE</b>	
Fireproof. Cool. Ventilation along the floor and ceiling. Separated from oxidizing materials.	
<b>PACKAGING</b>	

 <p>International Labour Organization</p>	 <p>World Health Organization</p>	<p>Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission. © ILO and WHO 2017</p>	 <p>European Commission</p>
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PHYSICAL & CHEMICAL INFORMATION	
<p><b>Physical State; Appearance</b> ODOURLESS COLOURLESS COMPRESSED GAS.</p> <p><b>Physical dangers</b> The gas mixes well with air, explosive mixtures are easily formed. The gas is lighter than air.</p> <p><b>Chemical dangers</b> Heating may cause violent combustion or explosion. Reacts violently with halogens, oxidizing materials and greases. This generates fire and explosion hazard. Metal catalysts, such as platinum and nickel, greatly enhance these reactions.</p>	<p>Formula: H<sub>2</sub> Molecular mass: 2.0 Boiling point: -253°C Melting point: -259°C Relative vapour density (air = 1): 0.07 Flash point: Flammable gas Auto-ignition temperature: 560°C Explosive limits, vol% in air: 4-75 Vapour pressure, kPa at 25°C: 165320 Solubility in water, mg/l at 21°C: 1.62 (very poor)</p>

EXPOSURE & HEALTH EFFECTS	
<p><b>Routes of exposure</b> Exposure mainly occurs via inhalation.</p> <p><b>Effects of short-term exposure</b> Asphyxiation. See Notes. Exposure to cold gas could cause frostbite.</p>	<p><b>Inhalation risk</b> On loss of containment this substance can cause suffocation by lowering the oxygen content of the air in confined areas.</p> <p><b>Effects of long-term or repeated exposure</b></p>

OCCUPATIONAL EXPOSURE LIMITS

ENVIRONMENT

NOTES
<p>High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering the area. Measure hydrogen concentrations with suitable gas detector (a normal flammable gas detector is NOT suitable for the purpose).</p>

ADDITIONAL INFORMATION
<p><b>EC Classification</b> Symbol: F+; R: 12; S: (2)-9-16-33</p>

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