

Section 1. Identification**Product identifier****Product Identity**

Hydrogen Gas (CHE-8021S)

Other means of identification

Not Applicable

Relevant identified uses of the substance or mixture and uses advised against

Used in various industrial applications.

Restrictions on use:

Not Available

Details of the supplier of the safety data sheet**Company Name**Chemtrade Logistics Inc. (Canada)
155 Gordon Baker Road Suite 300
Toronto, Ontario M2H 3N5
(416) 496-5856Chemtrade Logistics Inc. (US)
90 East Halsey Road, Suite 200
Parsippany, NJ 07054
(800) 228- 8558**Emergency****24 hour Emergency Telephone No.**Chemtrade Emergency Contact: (866) 416-4404 (US and Canada)
CHEMTREC +1-800-424-9300
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night**Customer Service:**For SDS Info: (416) 496-5856
www.chemtradelogistics.com**Section 2. Hazard(s) identification****Classification of the substance or mixture**

Flammable Gas, category 1;H220

Extremely flammable gas.

Gas under pressure;H280

Contains gas under pressure; may explode if heated.

Simple Asphyxiant

May displace oxygen and cause rapid suffocation.

Label elements



Danger

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

[Prevention]:

P210 Keep away from heat, sparks, open flames, and other ignition sources - No smoking.

[Response]:

P377 Leaking gas fire - do not extinguish unless leak can be stopped safely.

P381 In case of leakage, eliminate all ignition sources.

[Storage]:

P403 Store in a well ventilated place.

P410+403 Protect from sunlight. Store in a well ventilated place.

[Disposal]:

Other hazards

May displace oxygen and cause rapid suffocation.

This product contains no PBT/vPvB/vPvM chemicals.

This product contains no endocrine disrupting chemicals.

Does NOT contain component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS) per the US EPA PFASMASTER combined list of PFAS chemicals.

Section 3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the Hazardous Products Regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Hydrogen CAS Number: 1333-74-0 Synonyms: No available information	80 - 100	Flammable Gas, category 1;H220 Gas under pressure;H280	No data available

The actual concentration or concentration range is withheld as a trade secret.

*PBT/vPvB - PBT, vPvM or vPvB-substance.

The full texts of the phrases are shown in Section 16.

Section 4. First aid measures

Description of first aid measures**General**

Take personal protective measures first, and after ensuring safety, move the patient out of the contaminated area to a place with fresh air. Never give anything by mouth to an unconscious person. If frostbite or freezing occurs, do not use hot water. Do not rub affected area.

Immediately call a POISON CENTER, doctor or physician.

Inhalation

Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. If breathing has stopped or is labored, trained personnel should give artificial respiration or assisted respirations. It is best to give oxygen under the guidance of trained personnel.

If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.

Get immediate medical attention.

Eyes

In case of frostbite, do not try to heat the affected area, cover eyes with gauze, and see a physician immediately.

If no frostbite, open the eyelids immediately, rinse the affected area with plenty of warm water for more than 30 minutes until the contamination is removed, then cover the eyes with gauze, and see a physician immediately.

Skin

If necessary, wear protective gloves to avoid direct contact with this chemical. Remove contaminated clothing.

In case of frostbite, do not try to heat the affected area, do not rinse or rub the affected area, and see a physician immediately.

If no frostbite, don't take off clothes, spray with plenty of warm water for at least 30 minutes. Apply a sterile dressing, and see a physician immediately.

Wash contaminated clothing before reuse.

Ingestion

Ingestion is not considered a potential route of exposure. Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

Most important symptoms and effects, both acute and delayed**Overview**

Contact with gas escaping the container can cause frostbite. Asphyxia by lack of oxygen: risk of death.

Inhalation: In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Skin Contact: Contact with gas escaping the container can cause frostbite and freeze burns.

Eye Contact: Contact with gas escaping the container can cause frostbite, freeze burns, and permanent eye damage.

Ingestion: Not considered a potential route of exposure, but contact with gas escaping the container can cause freeze burns and frostbite.

Indication of Any Immediate Medical Attention and Special Treatment Needed: If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand. See section 2 for further details.

Chronic effects

Chronic exposure is likely to have adverse effects to the blood, central nervous system, and cardiovascular system.

Section 5. Fire-fighting measures**Extinguishing media**

Suitable Extinguishing Media: Do not extinguish burning gas if flow cannot be shut off immediately. Extinguish secondary fires with appropriate materials. Water spray, fog.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special hazards arising from the substance or mixture

Hazardous decomposition: No hazardous decomposition data available.

Prevent entry to sewers and public waters. Avoid release to environment.

Keep away from heat, sparks, open flames, and other ignition sources - No smoking.

Advice for fire-fighters

Fire Hazard: Extremely flammable gas. Burns at all ambient temperatures with a nearly invisible or light blue flame. A fireball forms if gas cloud ignites immediately after release.

Explosion Hazard: May form flammable/explosive gas-air mixture. Container may explode in heat of fire.

Reactivity: May react violently with incompatible materials, increasing risk of fire or explosion.

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. May form flammable/explosive gas-air mixture.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: None known.

Other Information: Use water spray to disperse vapors. Do not allow run-off from fire fighting to enter drains or water courses.

ERG Guide No. 115

Section 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures****For Non-Emergency Personnel**

Protective Equipment: Use recommended respiratory protection. Use appropriate personal protective

equipment (PPE); protective clothing, gloves and eye/face protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Keep upwind.

For Emergency Personnel

Protective Equipment: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection. Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area. Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area.

Check oxygen content before entering area. Eliminate every possible source of ignition. Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area.

Environmental precautions

Prevent entry to sewers and public waters. Avoid release to environment.

Methods and material for containment and cleaning up

Methods for Cleaning up: Stop the source of the release, if safe to do so. Isolate the area until gas has dispersed. Consider the use of water spray to disperse vapors. Ventilate and gas test area before entering. Clean up spills immediately and dispose of waste safely. Contact competent authorities after a spill.

For Containment: Stop leak if possible without risk. As an immediate precautionary measure, isolate spill or leak area in all directions. Use only non-sparking tools.

Section 7. Handling and storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety procedures. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details). Avoid contact with eyes, skin and clothing. Do not breathe gas.

Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothing and protective equipment before entering eating areas.

Promptly remove soiled clothing and wash thoroughly before reuse.

Use only outdoors or in a well-ventilated area.

See section 2 for further details. - [Prevention]:

Conditions for safe storage, including any incompatibilities

Store in a dry, cool, well-ventilated location. A segregated, fireproof location is recommended. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Eliminate all ignition sources.

Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Store in accordance with local regulations.

Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Use explosion proof equipment.

Incompatible materials: Strong oxidizers. Oxygen. Halogens. Air. Metal catalysts such as nickel and platinum.

Asphyxiating gas at high concentrations. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated.

Gas escaping from cylinder can cause frost-type burns.

Use only non-sparking tools. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Additional Hazards When Processed: Empty containers retain product residue and can be hazardous and may contain residual flammable vapors. Protect cylinders from physical damage. Do not pressurize, cut, or weld containers.

See section 2 for further details. - [Storage]:

Specific end use(s)

Used in various industrial applications.

Restrictions on use:

Not Available

Section 8. Exposure controls / personal protection

Control parameters

Exposure Limits

CAS No.	Ingredient	Source	Value
1333-74-0	Hydrogen	ACGIH	(D) Simple Asphyxiant - (EX) Explosion hazard
		OSHA	No Established Limit
		NIOSH	No Established Limit
		Alberta	No Established Limit
		British Columbia	No Established Limit
		Manitoba	See Appendix F: Minimal Oxygen Content, explosion hazard
		New Brunswick	No Established Limit
		Newfoundland and Labrador	See Appendix F: Minimal Oxygen Content, explosion hazard
		Nova Scotia	See Appendix F: Minimal Oxygen Content, explosion hazard
		Northwest Territories	No Established Limit
		Nunavut	No Established Limit
		Ontario	see Appendix F: Minimal Oxygen Content
		Prince Edward Island	See Appendix F: Minimal Oxygen Content, explosion hazard
		Quebec	No Established Limit
		Saskatchewan	No Established Limit
		Yukon	No Established Limit

Exposure controls**Respiratory**

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Eyes

Chemical safety goggles

Skin

Wear chemically resistant protective gloves. If material is cold, wear thermally resistant protective gloves. Wear protective gloves. Wear suitable protective clothing.

Materials for Protective Clothing: Chemically resistant materials and fabrics. Fire/flammable resistant clothing is recommended.

Engineering Controls

Gas detectors should be used when flammable gases or vapors may be released. Ensure adequate ventilation, especially in confined areas. Proper grounding procedures to avoid static electricity should be followed. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use explosion-proof equipment. Oxygen detectors should be used when asphyxiating gases may be released. Ensure all national/local regulations are observed. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Other Work Practices

Put on appropriate personal protective equipment. Chemically compatible gloves, protective clothing, and chemical resistant safety goggles. If insufficient ventilation: wear respiratory protection.

When line breaking and where there is higher exposure potential, additional protective clothing may be required. A site-specific PPE hazard assessment is recommended and should be reviewed for any additional requirements that may be needed for specific tasks. Check oxygen content before entering area. Eliminate every possible source of ignition. Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area.

See section 2 for further details.

Section 9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical State	Gas
Color	Colorless
Odor	Odorless
Odor threshold	No available information
Melting point / freezing point	-259.2 °C (-434.56 °F) at 54 mm Hg
Initial boiling point and boiling range	-252.77 °C (-422.99 °F)
Flammability (solid, gas)	Gas
Upper/lower flammability or explosive limits	Lower Explosive Limit: 4 % (% by volume) Upper Explosive Limit: 75 % (% by volume)
Flash Point	No available information
Auto-ignition temperature	500 °C (932 °F)
Decomposition temperature	No available information
pH	No available information
Viscosity (cSt)	No available information
Solubility in Water	Not Available
Partition coefficient n-octanol/water (Log Kow)	No available information
Vapour pressure (Pa)	1.24 * 10 ⁶ mmHg @ 25°C (77 °F)
Relative Density	0.000083 g/ml (AIR = 1)
Vapour Density	No available information
Evaporation rate (Ether = 1)	No available information
Explosive Properties	Contains gas under pressure; may explode if heated
Flammability	Extremely flammable gas
Specific Gravity	0.0695 (Gas)
Other information	
No other relevant information.	

Section 10. Stability and reactivity

Reactivity

May react violently with incompatible materials, increasing risk of fire or explosion.

Chemical stability

Contains gas under pressure; may explode if heated.

Possibility of hazardous reactions

Hazardous Polymerization will not occur.

Conditions to avoid

Direct sunlight, extremely high or low temperatures, open flames, sources of ignition and incompatible materials

Incompatible materials

Strong oxidizers. Oxygen. Halogens. Air. Metal catalysts such as nickel and platinum.

Hazardous decomposition products

No hazardous decomposition data available.

Section 11. Toxicological information
Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Product Acute Toxicity Estimates	NA	NA	NA	NA	NA

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Hydrogen - (1333-74-0)	No data available.	No data available.	No data available.	No data available.	No data available.

Carcinogen Data

CAS No.	Ingredient	Source	Value
1333-74-0	Hydrogen	IARC	No
		ACGIH	No Established Limit

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable

STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry:

Inhalation, ingestion, skin contact, and skin absorption.

Symptoms and effects, both acute and delayed:

Contact with gas escaping the container can cause frostbite. Asphyxia by lack of oxygen: risk of death.

Inhalation: In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Skin Contact: Contact with gas escaping the container can cause frostbite and freeze burns.

Eye Contact: Contact with gas escaping the container can cause frostbite, freeze burns, and permanent eye damage.

Ingestion: Not considered a potential route of exposure, but contact with gas escaping the container can cause freeze burns and frostbite.

Indication of Any Immediate Medical Attention and Special Treatment Needed: If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

Chronic effects Chronic exposure is likely to have adverse effects to the blood, central nervous system, and cardiovascular system.

Section 12. Ecological information

Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Hydrogen - (1333-74-0)	No data available.	No data available.	No data available.

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

No available information

Mobility in soil

No available information

Results of PBT and vPvB assessment

This product contains no PBT/vPvB/vPvM chemicals.

Other adverse effects

No available information

Section 13. Disposal considerations

Waste treatment methods

Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions. Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.

Section 14. Transport information



Classification Method: Classified as per Part 2, Sections 2.1-2.8 of the Transportation of Dangerous Goods Regulations.

DOT (Domestic Surface Transportation)

UN number	UN1049
UN proper shipping name	UN1049,Hydrogen, compressed,2.1,
Transport hazard class(es)	2.1
Sub Class	Not Applicable
Packing group	Not Applicable

TDG (Domestic Surface Transportation)

UN number	UN1049
UN proper shipping name	Hydrogen, compressed
Transport hazard class(es)	2.1
Sub Class	Not Applicable
Packing group	Not Applicable

IMO / IMDG (Ocean Transportation)

UN number	UN1049
UN proper shipping name	Hydrogen, compressed
Transport hazard class(es)	2.1

Sub Class	Not Applicable
Packing group	Not Applicable

ICAO/IATA	
UN number	UN1049
UN proper shipping name	Hydrogen, compressed
Transport hazard class(es)	2.1
Sub Class	Not Applicable
Packing group	Not Applicable

Environmental hazards

IMDG Marine Pollutant: No;

Special precautions for user

No available information

Section 15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

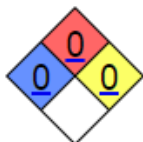
NFPA Ranking

Health (blue) :0

Fire (red) :0

Reactivity (yellow) :0

Special (white) :--


Toxic Substance Control Act (TSCA)

Hydrogen (Present)

CERCLA Chemicals and RQs:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Canadian Domestic Substance List (DSL):

Hydrogen

Canadian Non-Domestic Substance List (NDSL):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

Hydrogen

Pennsylvania RTK Substances (>1%):

Hydrogen

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Chemical Name (CAS Number)	US TSCA	Australia AICS	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EN NLP	Mexico INSQ
Hydrogen (1333-74-0)	Yes	Yes	Yes	Yes	No	No	No	Yes

Chemical Name (CAS Number)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSC	Japan PRTR 1	Japan PRTR 2	Philippines PICCS	New Zealand NZIOC
Hydrogen (1333-74-0)	Yes	No	No	No	No	No	Yes	Yes

Section 16. Other information**Revision Date** 11/24/2025**Revision Number** 3

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with

respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

Disclaimer: The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

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