

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Revision Date: 01/18/2017

Date of Issue: 06/15/2015

Version: 2.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Substance

Product Name: Hydrogen Gas

CAS No: 1333-74-0

Intended Use of the Product

Hydrogen gas is produced as a byproduct during sodium chlorate production. The cell line hydrogen produced is further purified (chlorine removed) and compressed before shipping. Used in Hydrogen Peroxide production.

Name, Address, and Telephone of the Responsible Party

Manufacturer

CHEMTRADE LOGISTICS INC.

155 Gordon Baker Road

Suite 300

Toronto, Ontario M2H 3N5

For SDS Info: (416) 496-5856

www.chemtradelogistics.com

Emergency Telephone Number

Emergency Number :

Canada: CANUTEC +1-613-996-6666 / US: CHEMTREC +1-800-424-9300

INTERNATIONAL: +1-703-741-5970

Chemtrade Emergency Contact: (866) 416-4404

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS Classification

Simple Asphy

Flam. Gas 1 H220

Compressed gas H280

Full text of hazard classes and H-statements : see section 16

Label Elements

GHS Labeling

Hazard Pictograms



Signal Word

: Danger

Hazard Statements

: H220 - Extremely flammable gas.

H280 - Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

Precautionary Statements

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

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 - In case of leakage, eliminate all ignition sources.

P403 - Store in a well-ventilated place.

P410+P403 - Protect from sunlight. Store in a well-ventilated place.

Other Hazards

Contact with gas escaping the container can cause frostbite. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

Unknown acute toxicity

No data available

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Name : Hydrogen Gas

CAS No : 1333-74-0

| Name | Product Identifier | %* | GHS Ingredient Classification |
|----------|--------------------|-----|---|
| Hydrogen | (CAS No) 1333-74-0 | 100 | Simple Asphy Flam. Gas 1, H220 Compressed gas, H280 |

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

Inhalation: First, 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. Obtain medical attention if breathing difficulty persists.

Skin Contact: If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

Eye Contact: If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

Ingestion: Though risk of ingestion is extremely unlikely, in case of frostbite or freeze burns due to oral exposure seek immediate medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: 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.

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

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.

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

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.

Advice for Firefighters

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

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

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.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: 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.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: 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. Eliminate ignition sources. Evacuate unnecessary personnel, isolate, and ventilate area. Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Materials for Containment and Cleaning Up

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.

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

Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. Do not pressurize, cut, or weld containers. Ruptured cylinders may rocket. Asphyxiating gas at high concentrations. Gas escaping from cylinder can cause frost-type burns.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Do not breathe gas.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

Conditions for Safe Storage, Including Any Incompatibilities

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

Storage Conditions: Store in a dry, cool place. Keep container closed when not in use. Keep in fireproof place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling.

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

Specific End Use(s)

Hydrogen gas is produced as a byproduct during sodium chlorate production. The cell line hydrogen produced is further purified (chlorine removed) and compressed before shipping. Used in Hydrogen Peroxide production.

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

| Hydrogen (1333-74-0) | | |
|----------------------|-------------------------|--|
| USA ACGIH | ACGIH chemical category | Simple asphyxiant See Appendix F: Minimal Oxygen Content |

Exposure Controls

Appropriate 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.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Wear fire/flammable resistant/retardant clothing.

Hand Protection: Wear protective gloves. If material is cold, wear thermally resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Thermal Hazard Protection: Wear thermally resistant protective clothing.

Other Information: When using, do not eat, drink or smoke

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

| | |
|--|--|
| Physical State | : Gas |
| Appearance | : Colorless, tasteless gas |
| Odor | : Odorless |
| Odor Threshold | : Not available |
| pH | : Not applicable |
| Evaporation Rate | : Not available |
| Melting Point | : -259.2 °C (-434.56 °F) at 54 mm Hg |
| Freezing Point | : Not available |
| Boiling Point | : -252.77 °C (-422.99 °F) |
| Flash Point | : Not available |
| Auto-ignition Temperature | : 500 °C (932 °F) |
| Decomposition Temperature | : Not applicable |
| Flammability (solid, gas) | : Extremely flammable gas |
| Lower Flammable Limit | : 4 % (% by volume) |
| Upper Flammable Limit | : 75 % (% by volume) |
| Vapor Pressure | : 1.24×10^6 mmHg @ 25°C (77 °F) |
| Relative Vapor Density at 20°C | : 0.000083 g/ml (AIR = 1) |
| Relative Density | : Not available |
| Specific Gravity | : 0.0695 (Gas) |
| Solubility | : Not available |
| Partition Coefficient: N-Octanol/Water | : Not available |

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

| | |
|-----------------------------|--|
| Viscosity | : Not applicable |
| Explosive Properties | : Contains gas under pressure; may explode if heated |
| Heat of vaporization | : 0.90 kJ/mol |

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: None known.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

pH: Not applicable

Eye Damage/Irritation: Not classified

pH: Not applicable

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Effects After 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.

Symptoms/Effects After Skin Contact: Contact with gas escaping the container can cause frostbite and freeze burns.

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

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

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

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

| | |
|-----------------------------|---------------|
| Hydrogen (1333-74-0) | |
| LC50 Inhalation Rat | > 7500 ppm/4h |

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Not classified.

Persistence and Degradability

| | |
|--------------------------------------|------------------|
| Hydrogen Gas (1333-74-0) | |
| Persistence and Degradability | Not established. |

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Bioaccumulative Potential

| | |
|---------------------------------|-------------------------------|
| Hydrogen Gas (1333-74-0) | |
| Bioaccumulative Potential | Not established. |
| Hydrogen (1333-74-0) | |
| BCF Fish 1 | (no bioaccumulation expected) |

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS





Waste Disposal Recommendations: 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.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

| TRANSPORTATION CLASSIFICATION | DOT | TDG | IMDG | IATA |
|-------------------------------|---|---|---|---|
| Identification Number | UN1049 | UN1049 | UN1049 | UN1049 |
| Proper Shipping Name | HYDROGEN, COMPRESSED | HYDROGEN, COMPRESSED | HYDROGEN, COMPRESSED | HYDROGEN, COMPRESSED |
| Transport Hazard Class(es) | 2.1 | 2.1 | 2.1 | 2.1 |
| |  |  |  |  |
| Packing Group | Not applicable | Not applicable | Not applicable | Not applicable |
| Environmental Hazards | Marine Pollutant : No | Marine Pollutant : No | Marine Pollutant : No | Marine Pollutant: N/A |
| Emergency Response | ERG Number : 115 | ERAP Index: 3 000 | EMS: F-D, S-U | ERG code (IATA): 10L |
| Additional Information | Not applicable | Not applicable | Not applicable | Not applicable |

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

| Chemical Name (CAS No.) | CERCLA RQ | EPCRA 304 RQ | SARA 302 TPQ | SARA 313 |
|-------------------------|----------------|----------------|----------------|----------|
| Hydrogen (1333-74-0) | Not applicable | Not applicable | Not applicable | No |

SARA 311/312

| |
|---|
| Hydrogen Gas (1333-74-0) |
| Fire hazard. Sudden release of pressure hazard. Immediate (acute) health hazard. Delayed (chronic) health hazard. |

US TSCA Flags Not present

US State Regulations

California Proposition 65

| Chemical Name (CAS No.) | Carcinogenicity | Developmental Toxicity | Female Reproductive Toxicity | Male Reproductive Toxicity |
|-------------------------|-----------------|------------------------|------------------------------|----------------------------|
| Hydrogen (1333-74-0) | No | No | No | No |

State Right-To-Know Lists

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Hydrogen (1333-74-0)

U.S. - Massachusetts - Right To Know List - Yes
 U.S. - New Jersey - Right to Know Hazardous Substance List - Yes
 U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - No
 U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No
 U.S. - Pennsylvania - RTK (Right to Know) List - Yes

Canadian Regulations

Hydrogen (1333-74-0)

Listed on the Canadian DSL (Domestic Substances List)
 Not listed on the Canadian NDSL (Non-Domestic Substances List)

International Inventories/Lists

| Chemical Name (CAS No.) | Australia AICS | Turkey CICR | Korea ECL | EU EINECS | EU ELINCS | EU SVHC | EU NLP | Mexico INSQ |
|-------------------------|-------------------|----------------|---------------|----------------|---------------|----------------------|-------------------------|----------------|
| Hydrogen (1333-74-0) | Yes | No | Yes | Yes | No | No | No | Yes |
| Chemical Name (CAS No.) | China IECSC | Japan ENCs | Japan ISHL | Japan PDSCL | Japan PRTR | Philippines PICCS | New Zealand NZIOC | US TSCA |
| Hydrogen (1333-74-0) | Yes | No | No | No | No | Yes | Yes | Yes |

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 01/18/2017

Revision Summary

| Section | Change | Date Changed |
|---------|-------------------|--------------|
| 2 | Language modified | 01/18/2017 |
| 4 | Language modified | 01/18/2017 |
| 5 | Language modified | 01/18/2017 |
| 6 | Language modified | 01/18/2017 |
| 7 | Language modified | 01/18/2017 |
| 8 | Language modified | 01/18/2017 |
| 10 | Language modified | 01/18/2017 |
| 11 | Language modified | 01/18/2017 |
| 12. | Language modified | 01/18/2017 |
| 14 | Language modified | 01/18/2017 |
| 15 | Language modified | 01/18/2017 |
| 16 | Language modified | 01/18/2017 |

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

| | |
|----------------|--|
| Compressed gas | Gases under pressure Compressed gas |
| Flam. Gas 1 | Flammable gases Category 1 |
| Simple Asphy | Simple Asphyxiant |
| H220 | Extremely flammable gas |
| H280 | Contains gas under pressure; may explode if heated |
| H380 | May displace oxygen and cause rapid suffocation |

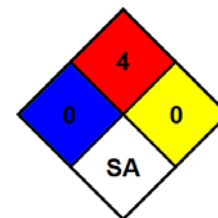
Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

NFPA 704

- NFPA Health Hazard** : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
- NFPA Fire Hazard** : 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.
- NFPA Reactivity Hazard** : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
- NFPA Specific Hazards** : SA - This denotes gases which are simple asphyxiants.



HMIS Rating

- Health** : 0 Minimal Hazard - No significant risk to health
* Chronic - Chronic (long-term) health effects may result from repeated overexposure
- Flammability** : 4 Severe Hazard
- Physical** : 0 Minimal Hazard
- PPE** See Section 8

Abbreviations and Acronyms

| | |
|---|---|
| AICS - Australian Inventory of Chemical Substances | ISHL - Japan Industrial Safety and Health Law |
| ACGIH - American Conference of Governmental Industrial Hygienists | LC50 - Median Lethal Concentration |
| AIHA - American Industrial Hygiene Association | LD50 - Median Lethal Dose |
| ATE - Acute Toxicity Estimate | LOAEL - Lowest Observed Adverse Effect Level |
| BCF - Bioconcentration factor | LOEC - Lowest-observed-effect Concentration |
| BEI - Biological Exposure Indices (BEI) | NFPA 704 - National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response |
| CAS No. - Chemical Abstracts Service number | NIOSH - National Institute for Occupational Safety and Health |
| CERCLA RQ - Comprehensive Environmental Response, Compensation, and Liability Act - Reportable Quantity | NLP - Europe No Longer Polymers List |
| CICR - Turkish Inventory and Control of Chemicals | NOAEL - No-Observed Adverse Effect Level |
| DOT - 49 CFR - US Department of Transportation - Code of Federal Regulations Title 49 - Transportation. | NOEC - No-Observed Effect Concentration |
| EC50 - Median effective concentration | NZIOC - New Zealand Inventory of Chemicals |
| ECL - Korea Existing Chemicals List | OEL - Occupational Exposure Limits |
| EINECS - European Inventory of Existing Commercial Chemical Substances | OSHA - Occupational Safety and Health Administration |
| ELINCS - European List of Notified Chemical Substances | PEL - Permissible Exposure Limits |
| EmS - IMDG Emergency Schedule Fire & Spillage | PICCS - Philippine Inventory of Chemicals and Chemical Substances |
| ENCS - Japanese Existing and New Chemical Substances Inventory | PDSCL - Japan Poisonous and Deleterious Substances Control Law |
| EPA - Environmental Protection Agency | PPE - Personal Protective Equipment |
| EPCRA 304 RQ - EPCRA 304 Extremely Hazardous Substance Emergency Planning and Community Right-to-Know-Act - Reportable Quantity | PRTR - Japan Pollutant Release and Transfer Register |
| ERAP Index - Emergency Response Assistance Plan Quantity Limit | REL - Recommended Exposure Limit |
| ErC50 - EC50 in Terms of Reduction Growth Rate | SADT - Self Accelerating Decomposition Temperature |
| ERG code (IATA) - Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO) | SARA - Superfund Amendments and Reauthorization Act |
| ERG No. - Emergency Response Guide Number | SARA 302 - Section 302, 40 CFR Part 355 |
| HCCL - Hazard Communication Carcinogen List | SARA 311/312 - Sections 311 and 312, 40 CFR Part 370 Hazard Categories |
| HMIS - Hazardous Materials Information System | SARA 313 - Section 313, 40 CFR Part 372 |
| IARC - International Agency for Research on Cancer | SRCL - Specifically Regulated Carcinogen List |
| IATA - International Air Transport Association - Dangerous Goods Regulations | STEL - Short Term Exposure Limit |
| IDLH - Immediately Dangerous to Life or Health | SVHC - European Candidate List of Substance of Very High Concern |
| IECSC - Inventory of Existing Chemical Substances Produced or Imported in China | TDG - Transport Canada Transport of Dangerous Goods Regulations |
| IMDG - International Maritime Dangerous Goods Code | TLM - Median Tolerance Limit |
| INSQ - Mexican National Inventory of Chemical Substances | TLV - Threshold Limit Value |
| | TPQ - Threshold Planning Quantity |
| | TSCA - United States Toxic Substances Control Act |
| | TWA - Time Weighted Average |
| | WEEL - Workplace Environmental Exposure Levels |

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.

Hydrogen Gas

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.



Chemtrade NA GHS SDS 2015