canexus

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MATERIAL SAFETY DATA SHEET

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SECTION 1 - IDENTIFICATION

PRODUCT IDENTIFIER:	**HYDROGEN GAS**
PRODUCT USE:	Hydrogenation of oils and fats, and as a fuel.
MANUFACTURER:	**Canexus Chemicals Canada Limited Partnership** 100 Amherst Avenue North Vancouver, British Columbia, Canada V7H 1S4 **Emergency, call: (604) 929-3441** To Request an MSDS, call: 1-800-699-6924

This MSDS is available in French upon request.

Cette fiche signalétique est disponible en français sur demande.

SECTION 2 - HAZARDS IDENTIFICATION

WHMIS CLASSIFICATION:

A - Compressed Gas

B1 - Flammable Material

EMERGENCY OVERVIEW:

Highly flammable and explosive gas. Simple asphyxiant.

EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:

INHALATION: Simple asphyxiant. Non-toxic. Can displace oxygen which can lead to oxygen deficiency. Oxygen content of atmosphere must not be allowed to fall below 18%.

SKIN CONTACT: No known effects.

EYE CONTACT: No known effects.

INGESTION: Not applicable to gaseous hydrogen.

EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Long-term exposure to hydrogen has no known health effects.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

None identified.

SECTION 3 - COMPOSITION

HAZARDOUS INGREDIENTS	% (w/w)	CAS NUMBER
Hydrogen	100	1333-74-0

SECTION 4 - FIRST AID MEASURES

INHALATION: Take precautions to ensure your own safety before attempting rescue. Wear appropriate personal protective equipment and use the 'buddy' system. Remove source of hydrogen or remove victim to fresh air. If breathing has stopped, a trained person should begin artificial respiration, or if the heart has stopped, start cardiopulmonary resuscitation (CPR) immediately. Oxygen may be beneficial if administered by a suitably trained person. Obtain medical attention immediately.

INGESTION: Not applicable.

SKIN CONTACT: Not applicable.

EYE CONTACT: Not applicable.

GENERAL COMMENTS: Provide general supportive measures associated with oxygen deficiency. First-aid procedures should be reviewed by appropriate personnel familiar with hydrogen and its conditions of use in the workplace.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT:	Flammable gas	LOWER FLAMMABILITY LIMITS:	4%	SENSITIVITY TO MECHANICAL IMPACT:	Yes
AUTOIGNITION TEMPERATURE:	400 degrees C	UPPER FLAMMABILITY LIMITS:	75%	SENSITIVITY TO STATIC DISCHARGE:	Yes

HAZARDOUS COMBUSTION PRODUCTS: None.

EXTINGUISHING MEDIA: Dry chemical or carbon dioxide (CO_2), water spray, fog or foam.

FIRE FIGHTING INSTRUCTIONS: Wear adequate personal protective equipment. Stop flow of gas and remove hydrogen containers from fire area if safe to do so. Do not extinguish a leaking gas flame unless the leak can be securely plugged. Use water to keep fire-exposed containers cool. Containers may explode in fire. For massive fire in large area, use unmanned hose holders or monitor nozzles. If this is not possible, withdraw and allow the fire to burn. Stay clear of tank ends. Withdraw immediately upon hearing rising sound from safety venting devices, or upon seeing discolouration of tanks or cylinders due to fire. Hydrogen is much lighter than air and will readily diffuse.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 0 - No unusual hazard
FLAMMABILITY: 4 - Flammable gas
REACTIVITY: 0 - Not reactive when mixed with water.
SPECIFIC HAZARDS: None

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION: Extinguish or remove all ignition sources. Evacuate unnecessary personnel from discharge area and restrict access until containment is secured and area ventilated. Wear appropriate personal protective equipment.

ENVIRONMENTAL PRECAUTIONS: Stop or reduce leak if safe to do so.

REMEDIATION MEASURES: Ensure cleanup is conducted by trained personnel only. Use all appropriate personal protective equipment. Extinguish or remove all sources of ignition. Isolate area until gas has dispersed.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Transported via pipeline. Use non-sparking tools and follow safe handling practices for compressed gas cylinders as described by the Compressed Gas Association or the relevant agency in the country where the product is used . Regularly inspect and test piping and containment used for hydrogen service. Do not use near welding operations, flames or hot surfaces. Electrically ground piping. Have emergency equipment readily available.

STORAGE: Protect piping from weather and physical damage.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE LIMITS:

ACGIH : Simple asphyxiant

ENGINEERING CONTROLS: Use general or local exhaust ventilation to maintain air quality and airborne hydrogen below 4,000 ppm, or 10% of LEL. Use non-sparking, grounded ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside. These controls may need to be augmented by the use of process or personnel enclosures, control of process conditions, or by process modification.

RESPIRATORY PROTECTION: Respiratory protective equipment is not normally required. For oxygen deficient atmospheres, use an SCBA with a full face-piece operated in positive pressure mode.

SKIN PROTECTION: No specific requirement.

EYE AND FACE PROTECTION: No specific requirement, but it is good practice to wear chemical safety goggles.

OTHER: No other requirements.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Colourless gas.	MELTING POINT:	-259.2 °C
ODOUR:	Odourless.	BOILING POINT:	-252.8 °C
pH:	Not applicable.	CRITICAL TEMPERATURE:	-239.9 °C
VAPOUR PRESSURE:	Gas (Not applicable)	RELATIVE DENSITY:	Not applicable.
SOLUBILITY:	Slightly soluble in water. (1.8% at 20 °C)	PARTION COEFFICIENT: n-OCTANOL/WATER	Not applicable.
VAPOUR DENSITY:	0.0695 (air = 1)	EVAPORATION RATE:	Not applicable.

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Hydrogen is stable.

INCOMPATIBILITY: Hydrogen is incompatible with oxidizing agents due to its flammability. Hydrogen reacts explosively with halogen compounds and platinum. Lithium will burn in hydrogen. Nitrogen trifluoride, oxygen difluoride react explosively with hydrogen when ignited.

HAZARDOUS DECOMPOSITION PRODUCTS: None.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 -TOXICOLOGICAL INFORMATION

ACUTE EFFECTS:

No information available

CARCINOGENICITY: No information available

SENSITIZATION: No information available

TERATOGENICITY: No information available

REPRODUCTIVE EFFECTS: No information available

MUTAGENICITY: No information available

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: No information available

ECOLOGICAL FATE INFORMATION: No information available

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of in accordance with all federal, provincial/state, and local regulations. Consult with your local supplier for additional information. It may be possible to allow hydrogen gas to dissipate into the air.

SECTION 14 - TRANSPORT INFORMATION

NOTE: THE TDG AND HAZMAT CLASSIFICATIONS BELOW ARE NOT APPLICABLE TO TRANSPORTATION VIA PIPELINE.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:

Hydrogen, compressed, Class 2.1, UN1049

US DOT HAZARDOUS MATERIALS REGULATIONS:

Hydrogen, compressed, 2.1, UN1049

SECTION 15 - REGULATORY INFORMATION

CANADIAN FEDERAL REGULATIONS: (not a comprehensive list)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): Hydrogen is on the Domestic Substances List (DSL).

WHMIS CLASSIFICATION:

A - Compressed Gas

B1 - Flammable Material

WHMIS INGREDIENT DISCLOSURE LIST: No

CPR COMPLIANCE

This product has been classified with the hazard criteria of the CPR, and the MSDS contains all the information required by CPR.

UNITED STATES FEDERAL REGULATIONS: (not a comprehensive list)

TOXIC SUBSTANCES CONTROL ACT (TSCA): Hydrogen is listed on the inventory.

OSHA: Not a Hazardous Substance under 29 CFR Section 1910, Subpart Z.

CERCLA: Not a Hazardous Substance under 40 CFR Part 302

SARA 313: Not subject to the reporting requirements of 40 CFR Part 372

SARA 311/312 EPA HAZARD CATEGORIES: Fire Hazard, Sudden Release of Pressure

SARA 302: No ingredients subject to 40 CFR Part 355

SECTION 16 - OTHER INFORMATION

VERSION:	3.0
PREPARED BY:	Canexus Chemicals Responsible Care Department. If you have any questions, contact Canexus at: 1-800-699-6924
REVISIONS:	Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.