

PRODUCT BACKGROUNDER

Hydrogen Gas

Important! For detailed information on this product and emergency measures, obtain the Material Safety Data Sheet (MSDS). In the case of an emergency, please call our 24-hour hotline at 1-800-561-6682 or 1-403- 314-8767.

May also be called: Hydrogen, H₂, Joffre Hydrogen, Corunna Hydrogen (Methanated or Non-Methanated)

Product/Substance Use:

- This product is manufactured at NOVA Chemicals' Corunna, Ontario and Joffre, Alberta facilities and is transported by pipeline and in pressurized tube trailers.
- Hydrogen is used as a fuel and as a raw material to make various industrial chemicals and polymers.
- Hydrogen is naturally present as a free element in the atmosphere at levels less than 1 ppm.

Characteristics and Safe Handling:

- This product is regulated in the workplace as a flammable, compressed gas. It is also regulated during transportation as a flammable gas.
- Hydrogen is an extremely flammable, compressed gas, having no colour and no odour. Hydrogen burns with an invisible to pale blue flame that is often very difficult to see.
- Areas surrounding a hydrogen release must be considered as immediate high risk for fire or explosion. Hydrogen is lighter than air and may collect to dangerous levels in confined areas. Check for gas pockets under roofs or at high ends of equipment. Ignition from a distance with flashback is possible.
- Any equipment used in areas of handling or storage must be approved for flammable, compressed gas systems and properly grounded for control of static electricity.
- Do NOT attempt to extinguish a hydrogen gas fire unless leak source can be isolated and shut off. Any release to water, air or land will immediately disperse into a highly flammable gas cloud that is easily ignited by heat, sparks, static charge or flames. High-pressure leaks frequently ignite spontaneously.
- Risk of container or pipeline explosion is extremely high when subjected to high heat or direct flames. Use large quantities of cold water to cool any pipelines or vessels exposed to fire.
- In the event of a large release or fire, evacuate personnel upwind to a safe distance of at least 0.8 to 1.6 kilometres (½ to 1 mile).

Health and Safety Information:

- Ensure adequate ventilation is available and wear all recommended personal protective equipment if contact with this material is likely. Hydrogen from the Corunna, Ontario facility may contain up to 1% carbon monoxide, as an impurity. The carbon monoxide impurity may increase or prolong possible toxic central nervous system effects including changes to respiration and heart rate, fatigue, disorientation, nausea, vomiting, unconsciousness, convulsions and possibly death.
- Care should be taken to avoid having compressed hydrogen gas contact the ears, skin or eyes, which can cause severe injury including frostbite. Wear thermal protective gloves and all recommended personal protective equipment if contact with this material is likely.
- If eyes are contacted by compressed hydrogen, immediately flush with warm water and seek immediate medical attention. Thaw frostbitten skin gently in warm water. Do NOT rub or pull off adherent objects or clothing. Seek immediate medical attention.
- Contact of the ear canal with the pressurized hydrogen gas may damage hearing. Seek immediate medical attention.
- Ensure adequate ventilation is available. Breathing hydrogen gas may cause nose and throat irritation, and at very high levels may cause headache, heartbeat irregularities, light-headedness, drowsiness, dizziness and nausea. With extended contact (usually in an enclosed space), unconsciousness or death due to low oxygen levels is possible.
- Wear fire-resistant or natural fibre clothing in areas where hydrogen releases can occur to reduce risk of possible build-up of static charge on synthetic fabrics.

Environmental Information:

- Hydrogen is a highly volatile gas with limited absorption into soil and sediment. Product is not considered harmful to plants, terrestrial or aquatic life.
- Hydrogen is present in the atmosphere naturally at levels less than 1 ppm. The methane component of the hydrogen gas from the Corunna, Ontario facility slowly degrades in air over a period of approximately six years. Methane is a greenhouse gas (GHG). Carbon monoxide elevates the concentrations of methane and ozone in the atmosphere and eventually oxidizes into carbon dioxide.
- Associated wastes may be flammable and regulated in Canada and in the United States. Ensure all applicable regulations are met.

Last update: December 19, 2011

For more information on this, or any other NOVA Chemicals' product, please contact us at the nearest location below during business hours or visit our website at www.novachemicals.com:

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