

PRODUCT BACKGROUNDER

Carbon Dioxide Gas (with Hydrogen Sulphide)

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: Recovered CO₂ gas; crude CO₂, Carbonic acid anhydride, carbonic acid gas, acid gas

Product/Substance Use:

- Carbon dioxide is an impurity in purchased ethane feedstock supplied to the Joffre, Alberta facility. It is removed from the ethane feed prior to ethane cracking.
- Carbon dioxide gas is compressed and transported by pipeline for use in enhanced oil recovery processes.
- Carbon dioxide is naturally occurring in air (0.035%). It is expired from human lungs (breathing) and absorbed by plants as part of the natural carbon nutrient cycle.

Characteristics and Safe Handling:

- This product is regulated in the workplace as a non-flammable, compressed gas with **very toxic** short-term effects. It is also regulated in transportation as a non-flammable gas.
- Carbon dioxide gas is a colourless, compressed gas mixture that does not burn. Product may have a distinctive, unpleasant odour due to **hydrogen sulphide**, a **toxic impurity** (less than 500 ppm).
- **Ensure good area ventilation** wherever gas is handled or stored. Any equipment used in areas of handling or storage must be approved for the non-flammable gas service it is being utilized for. Ensure proper grounding for control of static electricity.
- If carbon dioxide is exposed to high heat, pressurized pipelines and vessels may rupture due to thermal expansion of the gas. In the event of this type of release, evacuate personnel to a distance of at least 800 metres (1/2 mile).
- Carbon dioxide is heavier than air and may collect to dangerous levels in low, underground or confined areas and possible exposures to the **toxic hydrogen sulphide gas** may occur.

Health and Safety Information:

- Breathing carbon dioxide in high concentrations can cause headache, dizziness, shortness of breath, nausea, muscular weakness, heartbeat irregularities, drowsiness, ringing in the ears, confusion and convulsions. With extended contact (usually in an enclosed space), unconsciousness or death due to low oxygen levels is possible. **Ensure adequate ventilation is available.**
- **Hydrogen sulphide (H₂S)**, a **toxic impurity**, is irritating to the eyes, nose and throat at low ppm levels. **Ensure adequate ventilation is available.** H₂S can paralyze the sense of smell at concentrations over 50 ppm. At levels greater than 100 ppm, sense of smell is deadened with possible headache, nausea, vomiting and dizziness. Prolonged exposure to levels greater than 200 ppm can result in lung damage and possibly death. **Use approved air-supplied respiratory protection whenever possible personnel exposure is a concern.**
- Care should be taken to avoid having pressurized carbon dioxide gas contact or damage the skin, eyes or ears. **Wear all recommended personal protective equipment** if contact with this material is likely.
- If any irritation or injury occurs while handling this gas, **seek immediate medical attention.**

Environmental Information:

- Carbon dioxide evaporates quickly and therefore, has limited absorption into soil and sediment. Product is considered harmful to plants, terrestrial or aquatic life due to the hydrogen sulphide impurity.
- Product should be absorbed into the natural carbon and sulfur cycles. Increase in atmospheric carbon dioxide levels is linked to climate change / global warming.
- Associated wastes may be regulated in Canada and in the United States. Ensure all applicable regulations are met.

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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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