



Product Stewardship Summary

Crude Hydrogen

This product stewardship summary is intended to give general information about Crude Hydrogen or categories of Crude Hydrogen addressed. It is not intended to provide an in-depth discussion of all health and safety information. Additional information on this chemical is available through the applicable Safety Data Sheet which must be consulted before using this chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity:

Crude Hydrogen is a colorless, odorless gas with a sweet, oil-like odor. It contains typically 95% hydrogen. Crude Hydrogen is a co-product of ethylene production produced in Texas at the Cedar Bayou, Sweeny and Port Arthur facilities in closed systems. Crude Hydrogen gas is a combination of light gases. It contains methane, hydrogen, ethylene, ethane, nitrogen, and minor amounts of carbon monoxide and carbon dioxide.

CAS Number: 68476-26-6 **CAS Name:** Fuel Gases

Chemical Formula: NA

Synonyms: tailgas

Product Uses:

Chevron Phillips Chemical Crude Hydrogen is mainly used for refinery or chemical hydrogenation purposes. Excess Crude Hydrogen is burned in furnaces for fuel.

Physical/Chemical Properties:

Crude Hydrogen is classified as a highly flammable, category 4 gas under NFPA (National Fire Protection Association) and a category 1 gas both under the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals, and by the Occupational Safety and Health Administration (OSHA). Crude Hydrogen is explosive when exposed to heat or flame and it forms explosive materials with oxygen or air. Crude Hydrogen may react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc. and it may react violently or explosively with halogens. Crude Hydrogen is not stored, and is transported in a compressed, but not liquid form. Crude Hydrogen (as a compressed gas) is transported in a closed system.

Health Information:

Based on the available data for similar materials and the compounds, as per GHS, Crude Hydrogen is not expected to be an acute skin or eye irritant in the gaseous form, but may produce burns (frostbite) when released from the compressed form due to rapid evaporation. It could cause suffocation by displacement of oxygen at high concentration. There is no evidence that we are aware of that long-term exposure to components of Crude Hydrogen cause any genetic, developmental, reproductive or carcinogenic effects in humans.

Environmental Information:

Based on the available data, Crude Hydrogen is not expected to be harmful to the environment. Crude Hydrogen is a gas and most of it will quickly partition into the atmosphere and dissipate if released to the environment. No aquatic toxicity data for crude hydrogen has been identified. However, due to the gaseous state of the materials, they are not expected to be sufficiently available to aquatic life to present a hazard.

Exposure Potential:

Since Crude Hydrogen is handled in closed systems and transported by pipeline, exposure to the environment is anticipated to be negligible.

- *Workplace use:* This refers to potential exposure of Crude Hydrogen to persons in a manufacturing facility or through various industrial applications. Crude Hydrogen is handled in closed systems and transported by pipeline, so human exposure is expected to be minimal.
- *Consumer use:* There is no direct consumer use of Crude Hydrogen. Non-occupational exposure to Crude Hydrogen is expected to be minimal since Crude Hydrogen is consumed internally as fuel or used by the customer to produce other products and is transported via pipeline for a short distance.
- *Potential environmental release:* Crude Hydrogen is not stored and is transported in closed systems. Exposure to the environment is expected to be very low. Chevron Phillips Chemical is committed to operating in an environmentally responsible manner and has adopted the American Chemistry Council's Responsible Care[®] initiative.

Risk Management:

Chevron Phillips Chemical is committed to product stewardship and doing business responsibly. We endeavor to provide information for the safe use and handling of all our products. To that end, Safety Data Sheets are provided to customers. Before using Crude Hydrogen, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the product for the specific use in question. It is the ultimate responsibility of the user to ensure suitability for use and determine if this information is applicable to the user's specific application. Chevron Phillips Chemical does not make, and expressly disclaims, all warranties, including warranties of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, or allegedly arising from any usage of any trade or from any course of dealing in connection with the use of the information contained herein or any product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with the use of the information contained herein or any product itself.

Regulatory Information:

Regulations exist that govern the manufacture, sale, transportation, use and/or disposal of Crude Hydrogen. These regulations may vary by city, state, country or geographic region. Additional helpful information may be found by consulting the relevant product Safety Data Sheet and local and Federal regulations.

Sources of Additional Information:

- European Chemical Substances Information System (ESIS): <http://esis.jrc.ec.europa.eu/>
- Organization for Economic Cooperation and Development (OECD) - eChemPortal web-based search tool (use applicable CAS No):
<http://www.echemportal.org/echemportal/>
- European Chemicals Agency (ECHA) – Information on Registered Substances: <http://apps.echa.europa.eu/registered/registered-sub.aspx>
- Chevron Phillips Chemical's Safety Data Sheets: <http://www.cpchem.com/en-us/pages/msdssearch.aspx>

Conclusion: Crude Hydrogen is sold for purification and distribution to industrial customers who use hydrogen for refinery or chemical hydrogenation processes. Excess Crude Hydrogen is burned in Cedar Bayou furnaces for fuel. Crude Hydrogen is a highly flammable gas and is contained and transported in closed systems. It is not acutely toxic and is not expected to be a skin or eye irritant in the gaseous form, but may produce burns (frostbite) when released from the compressed form due to rapid evaporation. There is no evidence that we are aware of that long-term exposure can cause any adverse genetic, developmental, reproductive or carcinogenic effects in humans. Appropriate personal protective equipment practices and labeling, storage, and transportation procedures should be followed. Further, the relevant product Safety Data Sheets and applicable regulatory guidelines and requirements, including, but not limited to, OSHA guidelines, should be consulted prior to use or handling of Crude Hydrogen.

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