



Product Stewardship Summary Isoprene Feedstock

This product stewardship summary is intended to give general information about the chemical or categories of chemicals listed in this document. It is not intended to provide an in-depth discussion of all health and safety information related to this chemical or category. Additional information on this chemical or category of chemicals is available through the applicable Material Safety Data Sheet (MSDS). Please consult the MSDS before use of the chemical. The product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity:

Isoprene Feedstock (IPFS), also known as C5 diolefin, crude isoprene or C5 Amylene, is a colorless, volatile liquid. Isoprene Feedstock is a co-product of ethylene production. It is produced at the Cedar Bayou and Sweeny plants in Texas. The Isoprene Feedstock product from Sweeny is called C5 Amylene.

CAS Number: 68514-39-6 CAS name: Naphtha, (Petroleum), Light Steam-Cracked, Isoprene-Rich

Synonyms: Isoprene Feedstock; Isoprene C5 Diolefin Stream; C5 Amylene

Product Uses:

There are no consumer uses of Isoprene Feedstock. Typically, Isoprene Feedstock is fed to an extraction unit to isolate and recover isoprene and piperylene. Isoprene is used to make polyisoprene synthetic rubber for a wide variety of applications including tires, baby bottle nipples and medical equipment. It can also be a component of film and coating formulations. Piperylene is used to produce copolymerization elastomers, petroleum resins, curing agents, pesticides and perfumes. The remaining components in Isoprene Feedstock, mainly C5 paraffins, are often utilized as a gasoline blending stock.

Physical/Chemical Properties:

Isoprene Feedstock is classified by the U.S. Department of Transportation and Occupational Health and Safety Administration (OSHA) as a flammable liquid. The classifications are based on its low flash point (-54°C). Isoprene Feedstock is contained and transported in closed systems that are monitored and controlled. Electrostatic charge may accumulate during handling and create a potentially hazardous condition. Mitigating procedures (bonding and grounding) may be needed. Isoprene Feedstock reacts vigorously with many chemicals, including strong oxidizing agents (such as chlorates, nitrates and peroxides). Reaction with these materials may form highly explosive hydrogen or peroxides. It is unstable at elevated temperatures and low inhibitor content will lead to rapid polymerization. Maintenance of special handling and storage procedures is required.

Health Information:

Based on data for components, single exposures to high concentrations of Isoprene Feedstock by the oral or dermal routes, or inhalation at concentrations above recommended exposure standards, may be harmful. Due to its low viscosity Isoprene Feedstock may be an aspiration hazard. Breathing vapors at concentrations above the recommended exposure standards may cause central nervous system effects. If large quantities are inhaled, some of the components act as anesthetics and, at even higher concentrations, as an asphyxiant. Isoprene Feedstock may cause eye, skin and respiratory tract irritation. Also, repeated exposure to Isoprene Feedstock at levels well above the recommended exposure standards may have effect on several organ systems. Some components of Isoprene Feedstock have caused reproductive or developmental toxicity in laboratory animals. Isoprene Feedstock contains components that may cause genetic toxicity. Further, there is evidence that prolonged and repeated exposure to specific components (isoprene, butadiene and n-hexane) may cause cancer in laboratory animals. However, the available information on the metabolism of isoprene and butadiene to toxic intermediates indicates that they may be less likely to cause cancer in humans; and liver tumors found in female mice exposed to a hexane isomer mixture containing n-hexane are of questionable relevance for humans.

Environmental Information:

Based on available data for a similar material and the components, Isoprene Feedstock is expected to be toxic to aquatic organisms but is not expected to bioaccumulate. If Isoprene Feedstock is released to water or soil, it will rapidly partition into the air where it will degrade (half-life of hours to days) by indirect photolysis. The components of the small amount that do not volatilize quickly are expected to have low to high mobility in the soil. Degradation of some components in soil and groundwater is expected to occur within a period of days, and other components are likely to degrade over extended periods of time. Direct photolysis and hydrolysis are not expected to be important environmental fate processes. Isoprene Feedstock is not expected to accumulate to present an environmental hazard.

Exposure Potential:

Exposure to Isoprene Feedstock in non-occupational settings is expected to be very limited and worker exposure is kept to a minimum. Isoprene Feedstock is handled in closed systems and protective equipment is worn.

- Workplace use: This refers to potential exposure to Isoprene Feedstock to persons in a manufacturing facility or through various industrial applications. Manufacturing and transport involving Isoprene Feedstock are usually conducted in closed systems, so human exposure is expected to be very limited. The potential for exposure will increase slightly at the points of loading and off-loading of trucks or railcars for transport of product due to the increased risk of leakage or spill. Due to the use of a closed loading system, the exposure is expected to be limited.
- Consumer use: There is no direct consumer use of Isoprene Feedstock. Non-occupational exposure to Isoprene Feedstock is expected to be low since most of

it is consumed during the manufacturing process or when the material is used by customers as intermediates during the production of other products. However, there is some potential for non-occupational exposure when the product is transported over great distances and if used as a gasoline blending stock.

- *Potential environmental release:* Isoprene Feedstock is stored and 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 sufficient information for the safe use and handling of all our products. To that end, a Material Safety Data Sheet and certificate of analysis are provided to customers. In addition, we have completed a product risk assessment to evaluate the potential risks associated with the distribution and use of Isoprene Feedstock.

Regulatory Information:

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

Sources of Additional Information:

- Organization for Economic Cooperation and Development (OECD) - eChemPortal web-based search tool (use applicable CAS No):
<http://www.echemportal.org/echemportal/>
- U.S. Environmental Protection Agency (US EPA) - High Production Volume Information System (HPVIS):
<http://www.epa.gov/hpvis/index.html>
- European Chemicals Agency (ECHA) – Information on Registered Substances:
<http://apps.echa.europa.eu/registered/registered-sub.aspx>
- Chevron Phillips Chemical's olefins product website:
<http://www.cpchem.com/bl/olefins/en-us/Pages/Products.aspx>
- Chevron Phillips Chemical's Material Safety Data Sheets:
<http://www.cpchem.com/en-us/pages/msdssearch.aspx>

Conclusion:

Isoprene Feedstock is mainly used to produce isoprene and piperylene. Isoprene Feedstock is flammable and exposure at high levels may be harmful. Isoprene Feedstock is classified as a human carcinogen based on the presence of benzene and 1,3-butadiene, two minor components of Isoprene Feedstock. Benzene and 1,3-butadiene are classified as known human carcinogen by various regulatory agencies worldwide. Appropriate personal protective equipment practices and labeling, storage, and transportation

procedures shall be followed. Further, the relevant product Material Safety Data Sheets and applicable regulatory guidelines and requirements, including, but not limited to, OSHA guidelines, should be consulted prior to the use or handling of Isoprene Feedstock.

Contact Information:

<http://www.cpchem.com/>

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