Product Stewardship Summary
2-Methyl-2-Butene

This product stewardship summary is intended to give general information about the chemical or categories of chemicals addressed. It is not intended to provide an in-depth discussion of all health and safety information. Additional information is available through the applicable Safety Data Sheet (SDS) which should be consulted before use of any chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity

The Chevron Phillips Chemical Company LP product 2-methyl-2-butene is a colorless liquid with a mild odor. It contains primarily 2-methyl-2-butene (CAS No. 513-35-9) at 88-100 wt%, but it also contains the isomer 2-methyl-1-butene (CAS No. 563-46-2) at 12 to 30 wt%.

Synonym: Isoamylene, 2-methylbut-2-ene, β-isoamylene

Product Uses

2-methyl-2-butene is used as a chemical intermediate.

Physical/Chemical Properties

2-methyl-2-butene is a flammable liquid. The flash point of the 2-methyl-2-butene isomer is -45 °C and the boiling point is 38.6 °C. Electrostatic charge may accumulate during handling and create a potentially hazardous condition. Mitigating procedures (bonding and grounding) may be needed. 2-methyl-2-butene may react with many chemicals, including strong oxidizing agents (such as chlorates, nitrates and peroxides).

Health Information

2-methyl-2-butene has low acute toxicity. At high concentrations, vapors and aerosols can cause central nervous system depression with symptoms such as headaches, dizziness and drowsiness. 2-methyl-2-butene can cause skin, but not eye, irritation. It is not a dermal sensitizer. 2-methyl-2-butene is genotoxic, and while no carcinogenicity studies have been conducted on 2-methyl-2-butene, it is expected to be carcinogenic because of its similarities with two other genotoxic C5 and C4 olefin compounds - isoprene and 1,3-butadiene, respectively. Both isoprene and 1,3-butadiene have been shown to induce tumors in rats and mice, with greater potency in mice. The potential for reproductive and developmental toxicity from 2-methyl-2-butene is low.

If accidently ingested, a small amount of liquid may be aspirated into the lungs which can occur from either swallowing or from vomiting. Aspiration of liquid into the lungs may cause inflammation of the lungs and lung edema. This is a medical emergency and requires immediate and proper treatment. Do not induce vomiting.

Environmental Information

2-methyl-2-butene is toxic to aquatic organisms. It is not expected to bioaccumulate in the environment or absorb strongly to soil or sediment. 2-methyl-2-butene does not readily biodegrade, will persist in the environment. Due to the potential for 2-methyl-2-butene to cause significant harm to aquatic environments, care should be taken to avoid releases of them to sewage, drainage systems and water bodies. Spillage should be quickly collected and properly disposed of to minimize harm to the environment.

Exposure Potential

The most likely routes of exposure to 2-methyl-2-butene are skin and eye contact, and potentially via inhalation because of its flammability. The best way to prevent exposure is to work in well-ventilated areas, wear appropriate personal protective equipment (PPE), and follow good personal hygiene practices.

Workplace Use:

Potentially exposed populations include: (1) quality assurance workers who sample and analyze the products to ensure that they meet specifications; (2) workers involved in distribution and storage of these products; and (3) commercial consumers in occupational settings that use these products in intended applications. The most likely routes of exposure to these products in an occupational setting are eye and dermal contact, and potentially inhalation exposure. However, the likelihood of exposure to workers is expected to be low because these products are packaged in enclosed, controlled environments (i.e. drumming), transported in well-sealed containers, and because workers in the manufacturing and/or quality lab settings are properly trained to handle such products and wear appropriate personal protective equipment (PPE). Further, these products are sold to industrial customers that are familiar with their intended applications, safe-handling, storage, and disposal requirements. Packaging and loading, quality assurance, and transportation workers should always adhere to safe-handling practices, wear appropriate PPE and practice applicable exposure prevention measures (i.e. engineering controls). Customers should use appropriate PPE during handling and have risk mitigation measures in place to address potential physical hazards or accidental releases.

Consumer Use:

Potential exposure or impact to the general public is not anticipated for these products, as they are sold by Chevron Phillips Chemical Company to sophisticated industry users and not to the general population.

Potential Environmental Release:

There may be some potential for significant exposure to the environment from accidental releases during transportation of drums via truck trailers; however, the frequency of distribution incidents involving accidental release of these products has been low, and reported volumes spilled have been minimal. Chevron Phillips Chemical Company is committed to operating in an environmentally responsible manner and participates in the American Chemistry Council's Responsible Care® program.

Risk Management

Chevron Phillips Chemical Company 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. We make product information available to all of our customers, distributors, carriers, and users of these products which contain detail about the properties of each product. To that end, a Safety Data Sheet and a certificate of analysis accompany each shipment from our manufacturing plant.

Before using these products, 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 Company 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 disposal of 2-methyl-2-butene. These regulations may vary by city, state, country or geographic region. Additional relevant information may be found by consulting the applicable SDS.

Sources of Additional Information

Safety Data Sheets (SDS) at http://www.cpchem.com:

European Chemical Agency (ECHA) Dissemination portal with information on chemical substances registered under REACH

- http://echa.europa.eu/information-on-chemicals

Conclusion

2-methyl-2-butene is classified as a hazardous chemical. Efforts should be taken to minimize exposure to these products by adhering to safe-handling procedures, designated applications and uses, appropriate personal-protective equipment practices, and appropriate labeling, storage, and transportation procedures and requirements. The relevant SDS and applicable regulatory guidelines and requirements, including but not limited to Occupational Health and Safety Administration (OSHA) guidelines, should be consulted prior to the use or handling of these products.

Contact Information:
http://www.cpchem.com/