

BUTENE Product Stewardship Summary

CAS number

106-98-9

Chemical formula

C₄H₈

What is 1-butene?

1-butene is a linear alpha olefin (alkene), produced either by separation from crude C₄ refinery streams or from the reaction of ethylene. It is distilled to give a very high purity product.

How is 1-butene used?

1-butene is used in the manufacture of a variety of other chemical products. It fills an important role in the production of materials such as linear low density polyethylene (LLDPE). The co-polymerisation of ethylene and 1-butene produces a form of polyethylene that is more flexible and more resilient. 1-butene can also help to create a more versatile range of polypropylene resins. It is also used in the production of polybutene, butylene oxide and in the C₄ solvents secondary butyl alcohol (SBA) and methyl ethyl ketone (MEK).

Health, Safety and Environmental considerations

Butene is an extremely flammable, colourless gas that is generally stored and transported in pressurised liquid form. In use butene may form a flammable/explosive vapour-air mixture. Electrostatic charges may be generated during handling.

Direct contact with liquefied butene can cause frostbite-like burns to the eyes and skin due to the rapid evaporative cooling of the liquid. Inhaling high concentrations of butene gas may cause dizziness, headache and nausea. The gas is of low toxicity if inhaled and is only slightly toxic if swallowed or if it comes into contact with the skin. The gas is slightly irritating to the skin, eyes and respiratory tract. It is not expected to cause an allergic reaction.

In the aquatic environment, butene will evaporate rapidly, followed by rapid atmospheric oxidation. If dissolved in water, it is expected to have low toxicity to aquatic life.

Storage and Transport

Care should be taken during handling and transferring butene as electrostatic charges may be generated; discharge may cause fire. A nitrogen blanket is recommended for storage. Butene is transported in pressurised liquid form in gas tanks by road, rail and sea.

Risk Characterization Summary

Risks associated with exposure to this product have been evaluated for the following “chain-of-commerce” activities: manufacture, storage, product transfer, transportation, and customers/markets. Due to health, safety and environmental considerations, it is only manufactured, stored and transported to customers in closed systems. Likewise, customers are limited to those who only use the product in closed systems as an intermediate for the manufacture of other chemicals. Proper equipment design and handling procedures maintain low risk from exposure to the product where the product is used as a chemical intermediate.

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 health and safety information. Additional information is available through the chemical’s applicable Material Safety Data Sheet, which should be consulted before use of the chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.