

Product Safety Summary

ISOBUTYLENE



This Product Safety Summary document is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, or to provide a discussion of all safety and health information. This document is not intended to replace the (Material) Safety Data Sheet. Warnings and handling precautions provided below are not intended to replace or supersede manufacturers' instructions and warning for their consumer products which may contain this chemical substance.

1. Chemical Identity

Isobutylene is an olefin stream, generally manufactured from feedstocks that are of "petroleum" origin in a petroleum refinery or chemical plant. It is a hydrocarbon consisting of 4 Carbon atoms, characterized by a double bond. Isobutylene is one of the isomers of Butene, a C4-olefin.

It is typically available in high purity (>99%).

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Other Names:</u>
115-11-7	Isobutylene	Methyl-1-Propene

2. Product Uses

Isobutylene is used as a reactive component for two key purposes:

- Conversion/synthesis to other chemicals
- Monomer in the polymerization process to make butyl rubber components.

3. Physical / Chemical Properties

At ambient temperature and pressure, Isobutylene is a colorless gas, which can be liquefied under pressure. Isobutylene is highly flammable, and is considered a reactive chemical because of its olefinic bond. This allows it to undergo chemical reactions under selective and controlled conditions. It is typically handled in industrial facilities where safe conditions regarding ignition sources and ventilation are adequately controlled. The flash point is < -20 °C

4. Health Information

In an occupational setting, the primary route of exposure to Isobutylene is through inhalation. Isobutylene is generally believed to have low acute toxicity at the levels found in the workplace. At high concentrations, Isobutylene is an asphyxiant (the level of oxygen available to breathe is reduced); high level exposure can also lead to drowsiness and dizziness and may cause central nervous system depression. However, the amount of Isobutylene in the air necessary to have these effects is so high that the atmosphere would be in the explosive range of airborne concentrations. No evidence has been found to suggest that Isobutylene is carcinogenic or toxic to the reproductive or developmental systems.

5. Additional Hazard Information

Should skin or eye contact occur to isobutylene in the liquid form, tissue freezing, severe cold burn, and/or frostbite may result from rapidly expanding liquid. If frostbite occurs, immerse the involved area in water at body temperature. Keep immersed for 20 to 40 minutes and seek medical attention.

6. Food Contact Regulated Uses

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This product is not claimed as compliant for food contact uses.

7. Environmental Information

In the environment, Isobutylene entering aquatic and terrestrial habitats will rapidly partition to the air because it is a gas. In the air, Isobutylene has the potential to degrade rapidly through physical processes with an estimated half-life of approximately 2 hours. Because Isobutylene is a gas and will migrate rapidly from water and soil to air, residual concentrations in aquatic and terrestrial habitats will be very short lived and acute and chronic toxicity are not expected.

8. Exposure Potential

- **Workplace exposure** – This refers to potential exposure to Isobutylene in a manufacturing facility or industrial workplace. Generally, exposure to Isobutylene of personnel in manufacturing facilities is relatively low because the process, storage and handling operations are closed, with little potential for releases to the air. The American Conference of Government Industrial Hygienists (ACGIH) recommends limiting occupational exposure to no more than 250 parts per million (ppm) per an 8-hour work day. Since Isobutylene is used in a closed process, exposures are unlikely to approach these levels.
- **Consumer use of products containing Isobutylene** – Isobutylene is not sold to the general public. Exposure to consumers would be expected to be negligible, far below the recommended occupational exposure levels described above.
- **Environmental releases** – Chemical manufacturers are committed to operating in an environmentally responsible manner everywhere we do business. Our efforts are guided by in-depth scientific understanding of the environmental impact of our operations, as well as by the social and economic needs of the communities in which we operate. Industrial spills or releases are rare; however a spill may pose a significant flammability issue. Our operational improvement targets and plans are based on driving incidents with real environmental impact to zero and delivering superior environmental performance.

9. Manufacture of Product

- **Capacity** – Publicly available sources indicated that in 2005, the United States production of isobutylene was more than one billion pounds.
- **Process** – Isobutylene can be separated from Raffinates produced during Steam Cracker processes or from petroleum Refinery stream. Isobutylene can also be made through dehydrogenation of isobutane.

10. Risk Management

- **Workplace Risk Management** - When using this product, avoid breathing vapors from the material and make sure that there is adequate ventilation. Use non-sparking tools and explosion-proof equipment. Always use chemical resistant gloves to protect your hands and skin and always wear eye protection such as chemical goggles. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If this product gets into your eyes, flush eyes thoroughly with tap water. If irritation occurs, get medical assistance. Please refer to the (Material) Safety Data Sheet.
- **Consumer Risk Management** – This product is not sold directly to the public for general consumer uses. If exposure should occur, it is expected to be infrequent and of short duration. Always follow manufacturers' instructions, warnings and handling precautions when using their products. The best way to minimize exposure to vapors is to work in well-ventilated areas.

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11. Federal/Science Agency Resources (For CAS No. searches, enter 115-11-7)

Organization for Economic Cooperation and Development (OECD) - ChemPortal web-based search tool

- <http://www.echemportal.org/>

European Chemicals Agency (ECHA)

- <http://echa.europa.eu/web/guest/information-on-chemicals/registered-sub.aspx>

U.S. Environmental Protection Agency - High Production Volume Information System (HPVIS)

- <http://www.epa.gov/hpv/>

New Jersey Hazardous Substance Fact Sheet

- <http://nj.gov/health/eoh/rtkweb/documents/fs/1045.pdf>

12. Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of this product and may vary by city, state, country or geographic region. Additional helpful information may be found by consulting the relevant ExxonMobil (Material) Safety Data Sheet at:

- <http://www.msds.exxonmobil.com/psims/psims.aspx?brand=xomcc>

Conclusion Statements

Isobutylene. ...

- is a widely used industrial chemical used to make other industrial chemicals. It is typically not sold to the general public.
- is low in acute toxicity at typical exposures, but can be an asphyxiant at elevated concentrations which produce a flammable mixture with air.
- may cause frostbite if exposure to refrigerated liquid occurs.
- is not expected to cause adverse environmental effects at levels typically found in the workplace or environment.
- is extremely flammable; use only with good ventilation and avoid all ignition sources.

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