# Product Safety Summary

## 1,3-BUTADIENE

**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

1,3-Butadiene is generally manufactured from petroleum feedstocks in a chemical plant as part of the ethylene manufacturing process.

**CAS No.** 106-99-0

**Chemical Name**:
1,3-Butadiene

**Other Names**:
Buta-1,3-diene
Butadiene

### 2. Product Uses

1,3-Butadiene is a highly reactive monomer which is primarily used as feedstock for the production of polymers and synthetic rubber. The polymers are used to manufacture products such as automobile tires, neoprene gloves, and carpets. It is not sold directly to the public for general consumer uses.

### 3. Physical / Chemical Properties

At ambient temperature and pressure, 1,3-Butadiene is an extremely flammable gas. In order to prevent uncontrolled polymerization, an inhibitor is added and the chemical is stored under an inert gas. It is typically only handled in industrial facilities where safe conditions regarding ignition sources and ventilation are adequately controlled. The flash point for 1,3-Butadiene is approximately -76ºC.

### 4. Health Information

1,3-Butadiene is classified as a known human carcinogen by the International Agency for Research on Cancer (IARC). Since it is a gas at standard temperature and pressure, exposure during manufacturing and use would most likely occur through inhalation. 1,3-Butadiene is of low acute toxicity by all routes at levels typically found in the workplace or environment. At high concentrations, well above recommended exposure levels, it may cause drowsiness and lightheadedness. If the 1,3-Butadiene has been liquified (compressed), direct contact could result in frostbite-like burns to the eyes and/or skin.

### 5. Additional Hazard Information

1,3-Butadiene is a multi-site carcinogen in rodents. Epidemiology studies indicate an association between exposure to 1,3-butadiene and leukemia in humans. Mutations have been observed in in-vitro and in-vivo rodent assays. Although several older studies had conflicting results, a newer screening study in rats showed no adverse reproductive or developmental effects.

### 6. Food Contact Regulated Uses

1,3-Butadiene is not claimed as compliant for food contact uses.

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### 7. Environmental Information

In the environment, 1,3-Butadiene goes into the air. Once in the air, it rapidly degrades. Because the tendency of this chemical to move from water to air, water contamination and chronic aquatic toxicity are not expected.

1,3-Butadiene can be created during combustion processes, such as with motor vehicle engines and cigarettes.

### 8. Exposure Potential

- **Workplace exposure** – This refers to potential exposure to 1,3-Butadiene in a manufacturing facility or industrial workplace. Generally, exposure of personnel to butadiene 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 recommends limiting occupational exposure to no more than 2 parts per million (ppm) over an 8-hour work day. Similarly, the U.S. Occupational Safety and Health Administration has limited worker exposure to no more than 1 ppm per an 8-hour work day.
- **Consumer use of products containing 1,3-Butadiene** – 1,3-Butadiene is not sold to the general public and is not expected to be present in the polymers or synthetic rubbers made with it. Exposure to consumers would be expected to be low, far below the recommended occupational exposure level described above.
- **Environmental releases** – As a chemical manufacturer, we 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 or release 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** – SRI Consulting (http://www.sriconsulting.com/) indicates that in 2008, the worldwide consumption of 1,3-Butadiene was over 10.6 million metric tons.
- **Process** – 1,3-Butadiene is manufactured as part of a steam cracking processes used in chemical plants or petroleum refineries. Cracking processes allow the conversion of crude oil fractions into more useful products.

### 10. Risk Management

- **Workplace Risk Management** – When using 1,3-Butadiene, make sure that there is adequate ventilation. If it is (inadvertently) released during use, avoid breathing the gas. If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. 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 it is handled, processed, or stored. Wash hands and skin following contact. If it gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention. If liquid 1,3-Butadiene contacts the skin or eyes, watch for frostbite and seek medical attention. Please refer to the Safety Data Sheet.

## 1,3-BUTADIENE

- **Consumer Risk Management** - This chemical is not sold directly to the public for general consumer uses. As a result of its use in industrial chemical reactions, consumer exposure is highly unlikely. 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 prevent exposure to vapors is to work in well-ventilated areas.

### 11. Regulatory Information

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

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

### 13. Conclusion Statements

- 1,3-Butadiene is an industrial chemical used to make other industrial chemicals. It is not sold to the general public.
- 1,3-Butadiene is classified as a human carcinogen.
- 1,3-Butadiene is not expected to cause adverse environmental effects at levels typically found in the workplace or environment.
- 1,3-Butadiene is extremely flammable; use in closed systems, and only with good ventilation and avoid all ignition sources.