

Product Safety Summary



ETHYLIDENE NORBORNENE

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

Ethylidene Norbornene (ENB) is generally manufactured from a reaction of two other chemicals (cyclopentadiene and 1,3 Butadiene) in a chemical plant.

<u>CAS No.</u>	<u>Chemical Name:</u>	<u>Other Names:</u>
16219-75-3	Ethylidene Norbornene	ENB 5-Ethylidene Norbornene 5-Ethylidenebicyclo(2.2.1)hept-2-ene

2. Product Uses

ENB is a compound used in the production of ethylene-propylene diene monomer (EPDM) elastomers that are used in the production of synthetic rubber (EPDM Rubber). EPDM rubber is used in wide variety of applications, ranging from motor vehicles to food containers,

3. Physical / Chemical Properties

At ambient temperature and pressure, ENB is a colorless liquid with an extremely strong odor. It is typically only handled in industrial facilities where safe conditions regarding ignition sources and ventilation are adequately controlled. The flash point for ENB is approximately 30-40°C.

4. Health Information

ENB is considered irritating to the eyes, skin, and respiratory system. ENB 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.

5. Additional Hazard Information

If accidentally swallowed, small amounts of liquid may be aspirated into the lungs during ingestion or from vomiting which may cause severe lung inflammation and lung edema (an accumulation of fluid in the lungs). This is a medical emergency which must be immediately and properly treated.

6. Food Contact Regulated Uses

The polymers manufactured using ENB may be acceptable by the United States Food and Drug Administration for applications listed in 21 CFR under part 177, which includes indirect food additives and polymers used as closures with sealing gaskets for food containers.

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7. Environmental Information

ENB, if accidentally released to the aquatic environment, is moderately toxic (to fish and invertebrates). Although ENB biodegrades slowly, ENB entering aquatic or terrestrial habitats will volatilize to the air at a relatively rapid rate where it degrades quickly. Chronic toxicity is not expected from a single release to an aquatic habitat due to its potential for rapid volatile loss. However, if allowed to enter the environment continuously over a prolonged period, long-term adverse effects would be expected. Considerable measures are taken to prevent releases from manufacturing and use activities.

8. Exposure Potential

- **Workplace exposure** – This refers to potential exposure to ENB in a manufacturing facility or industrial workplace. Generally, exposure of personnel to ENB 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 5 parts per million (ppm) for any duration (known as a ceiling). ExxonMobil recommends that in addition to complying with the ceiling value above, worker exposure should be limited to no more than 1 ppm per an 8-hour work day.
- **Consumer use of products containing ENB** – 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.
- **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** – According to the US Environmental Protection Agency, 10 to 50 million pounds of ENB were manufactured in the US in 2005 (the most recent reporting year available).
- **Process** – ENB is generally manufactured from a reaction of two other chemicals (cyclopentadiene and 1,3 Butadiene) in a chemical plant.

10. Risk Management

- **Workplace Risk Management** – When using this chemical, make sure that there is adequate ventilation. If controls do not maintain air concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. 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 this chemical is handled, processed, or stored. Wash hands and skin following contact. If this chemical gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention. Please refer to the Safety Data Sheet.
- **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. The best way to minimize exposure to vapors is to work in well-ventilated areas.

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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>

12. Conclusion Statements

- ENB is an industrial chemical used to make other industrial chemicals. It is not sold to the general public.
- ENB is low in toxicity; however it may cause lung damage if swallowed.
- ENB has the potential to cause moderate environmental toxicity if released, and is not expected to cause long-term adverse environmental effects from a single release
- ENB is a flammable liquid; use in closed systems avoiding all ignition sources.

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