Product Safety Assessment

1-Octene

Product Safety Assessment documents are available at www.dow.com/productsafety/finder/.

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Names
- CAS No. 111-66-0
- 1-Octene
- 1-n-Octene
- n-1-octene
- n-octene-1
- α-Octene
- UN 1993
- Oct-1-en
- Oct-1-ene
- Oct-1-eno
- α-Octylene

Product Overview
- 1-Octene is a colorless, flammable liquid with a pleasant, sweet odor.¹ For further information, see Product Description.
- 1-Octene is used as an intermediate (monomer) in the manufacture of polyethylene resins.² For further information, see Product Uses.
- The people most likely to be exposed to increased levels of 1-octene in the air are those who work in chemical production facilities where it is made or used. The general public is not likely to be exposed to this material, since it is used as an industrial intermediate.³ For further information, see Exposure Potential.
- Eye contact may cause slight temporary irritation, but corneal injury is unlikely. Prolonged skin contact may cause irritation with local redness. Inhalation of 1-octene may cause central nervous system effects. Vapor concentrations are attainable that could be hazardous on single exposure.⁴ For further information, see Health Information.
- 1-Octene is not readily biodegradable; however it does biodegrade slowly under environmental conditions. The bioconcentration potential for this material is moderate. This material is toxic to aquatic organisms on an acute basis.⁵,⁶ For further information, see Environmental Information.
- 1-Octene liquid and vapor are highly flammable. Exposure to elevated temperatures can cause the material to decompose.⁷ For further information, see Physical Hazard Information.

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Manufacture of Product

- **Capacity** – Global affiliates of The Dow Chemical Company produce 1-octene at facilities in Tarragona, Spain.
- **Process** – The Dow Chemical Company and its global affiliates produce 1-octene using a unique butadiene telomerisation process.

Product Description

1-Octene is a linear organic compound in the alpha olefins category. It is a clear, colorless, flammable liquid with a pleasant, sweet odor.

Product Uses

1-Octene is used as an industrial intermediate, primarily in the production of polyethylene resins. Small amounts may be used in the synthesis of other chemicals.

Exposure Potential

1-Octene is an intermediate used in the production of industrial products. Based on the uses for this material, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a facility that manufactures 1-octene or in the various industrial or manufacturing facilities that use 1-octene. It is produced, distributed, stored, and consumed in closed systems. Those working with 1-octene in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit exposure. See Health Information.

- **Consumer exposure to products containing 1-octene** – Dow does not sell 1-octene for direct consumer use. Consumer exposure to 1-octene would not be expected, since it is used only as an industrial intermediate. See Health Information.

- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, surface water, or groundwater. Eliminate all sources of ignition immediately. Because 1-octene evaporates readily, most will eventually migrate to the atmosphere, where it is quickly broken down by hydroxyl radicals. 1-Octene is not persistent in the environment, but it has a moderate risk for accumulation in the food chain. Based on test guidelines, 1-octene cannot be considered readily biodegradable, but it does biodegrade slowly under environmental conditions. This material is toxic to aquatic organisms on an acute basis. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. For small spills, 1-octene should be absorbed with materials such as sand or soil. Ventilate the area of the leak or spill. If a large spill does occur, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Eliminate all sources of ignition immediately. Use only explosion-proof equipment; ground and bond all containers and handling equipment. Use foam to suppress vapor generation. Isolate the area until any vapor has dispersed. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Keep vapors out of sewers. Warn the public of any downwind explosion hazards. An approved positive-pressure, self-contained breathing apparatus (SCBA) with a full-face mask is recommended for emergency work. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Deny any unnecessary entry into the area. 1-Octene liquid and vapor are extremely flammable. Use water spray or fog, carbon-dioxide or dry-chemical extinguishers,
Health Information

**Eye contact** — Contact may cause slight temporary eye irritation. Corneal injury is unlikely. Vapor may cause eye irritation, experienced as mild discomfort and redness.

**Skin contact** — Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin. Prolonged contact is unlikely to result in the absorption of harmful amounts.

**Inhalation** — Vapor concentrations are attainable that could be hazardous on single exposure. Excessive exposure may cause irritation to the upper respiratory tract (nose and throat) or central nervous system effects. Symptoms may include headache, dizziness, and drowsiness, progressing to lack of coordination and unconsciousness.

**Ingestion** — This material has very low toxicity if swallowed. Harmful effects are not anticipated from swallowing small amounts. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**Repeated exposure** — In animal testing, effects have been reported on the kidney. The relevance of these findings to humans is unknown.

For more information, request the Safety Data Sheet from the [Dow Customer Information Group](#).

Environmental Information

1-Octene has low mobility in soil, but evaporates quickly if released to soil or water and exposed to the air. In the atmosphere, 1-octene is rapidly degraded by hydroxyl radicals, usually within hours.

Based on stringent OECD test guidelines, 1-octene cannot be considered to be readily biodegradable. However, the material is inherently biodegradable and biodegradation will occur slowly under environmental conditions. This material has moderate bioconcentration potential. 1-Octene is toxic to aquatic organisms (EC\textsubscript{50} between 1 and 10 mg/L) on an acute basis.

For more information, request the Safety Data Sheet from the [Dow Customer Information Group](#).

Physical Hazard Information

1-Octene vapor and liquid are highly flammable. If a source of ignition is present, vapors may cause a flash fire. Toxic gases may be released in fire situations.

Although stable under recommended storage and normal use conditions, exposure to elevated temperatures can cause 1-octene to decompose. Avoid open flames, welding arcs, or other high-
temperature sources, which can induce thermal decomposition. Decomposition products depend upon temperature, air supply, and the presence of other materials.

Avoid contact with oxidizing materials, acids, and oxidizers.

For more information, request the Safety Data Sheet from the Dow Customer Information Group.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of 1-octene. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet or Contact Us.

Additional Information

- Request the Safety Data Sheet from the Dow Customer Information Group at www.dow.com/assistance/dowcig.htm
- Contact Us (www.dow.com/assistance/dowcig.htm)

For more business information about 1-octene, contact the Dow Customer Information Group at www.dow.com/assistance/dowcig.htm.

References

NOTICES:

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment 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 relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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Form No. 233-00987-MM-0812