Product Safety Assessment

SYNHAPUR™ Amine Intermediate


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Names
- CAS No. 811-93-8
- 1,2-Diamino-2-methylpropane
- 1,2-Propanediamine, 2-methyl-
- 2-Methylpropylenediamine
- 2-Methylpropylene-1,2-diamine
- Propanediamine, 2-methyl-
- 1,1-Dimethyl-1,2-ethanediarmine
- SYNHAPUR™ Amine Intermediate

Product Overview
- SYNHAPUR™ Amine Intermediate is a colorless to yellow liquid with an amine odor consisting of 99% 1,2-diamino-2-methylpropane.¹ For further details, see Product Description.
- SYNHAPUR Amine Intermediate is used as a difunctional intermediate in chemical synthesis.² For further details, see Product Uses.
- Exposure can occur either in a manufacturing facility or in facilities that use this product. Engineering design and the use of appropriate safety equipment minimize the risk of exposure. Dow does not sell SYNHAPUR Amine Intermediate for consumer use, so direct consumer contact with this product is unlikely.³ For further details, see Exposure Potential.
- Eye contact with this product may cause severe irritation or burns with corneal injury that may result in permanent impairment of vision, even blindness. Brief skin contact may cause severe skin irritation and burns with pain, local redness, and tissue damage. May cause an allergic skin reaction. Inhalation of mist may cause irritation of the nose and throat. Product has low toxicity, but may be harmful if swallowed.⁴ For further details, see Health Information and request the relevant Safety Data Sheet from the Dow Customer Information Group.
- SYNHAPUR Amine Intermediate is slowly biodegradable. It does not accumulate in the aquatic food chain and is slightly toxic to aquatic organisms on an acute basis⁵. For further details, see Environmental Information.
- SYNHAPUR Amine Intermediate is stable under recommended storage and normal use conditions. Exposure to elevated temperatures can cause this product to decompose.⁶ For further details, see Physical Hazard Information.
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Manufacture of Product

- **Locations** – ANGUS™ Chemical Company, a wholly owned subsidiary of The Dow Chemical Company, and its global affiliates produce SYNTHAPUR™ Amine Intermediate at facilities in Europe.
- **Process** – SYNTHAPUR Amine Intermediate is produced using proprietary processes and raw materials. The chemical structure is shown below.

![Chemical Structure](image)

Product Description

SYNTHAPUR™ Amine Intermediate is a colorless to yellow liquid with an amine odor. It contains 99% 1,2-diamino-2-methylpropane by weight with the balance being mostly water. The product is marketed by ANGUS™ Chemical Company, a wholly owned subsidiary of The Dow Chemical Company.

Product Uses

SYNTHAPUR™ Amine Intermediate is used as a difunctional intermediate or raw material in chemical synthesis. The purity and low moisture content of SYNTHAPUR Amine Intermediate minimizes by-product formation and hydrolysis of unstable functional groups during production of pharmaceutical ingredients.

Exposure Potential

SYNTHAPUR™ Amine Intermediate is used in chemical synthesis. Based on the uses for this product, individuals could be exposed through:

- **Workplace exposure** – Exposure can occur either in a SYNTHAPUR Amine Intermediate manufacturing facility or in the various industrial or manufacturing facilities that use this product. Those working with this product 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 SYNTHAPUR Amine Intermediate** – Dow does not sell SYNTHAPUR Amine Intermediate for consumer use, so direct consumer contact with this product is unlikely. Although SYNTHAPUR Amine Intermediate is used in chemical synthesis, it is consumed in the reaction and is not considered to present a risk to consumers. See Health Information.
- **Environmental releases** – SYNTHAPUR Amine Intermediate has low volatility and may evaporate slowly if released to the environment. Because this product is miscible in water, once introduced, it will tend to remain in water. It is expected to biodegrade in the environment, including wastewater treatment plants. In the event of a spill, the focus is on containing the spill to prevent contamination of soil, surface water, or groundwater. Respiratory protection is necessary for cleaning up spills and leaks. See Environmental, Health, and Physical Hazard Information.
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, evacuate the area and keep personnel out of low areas. Keep upwind of the spill. Ventilate the area of the leak or spill. This product should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements by trained and properly equipped personnel. Prevent the product from entering soil, ditches, sewers, waterways, and/or groundwater. Product represents a vapor explosion hazard. Ground and bond all containers and handling equipment and eliminate all sources of ignition in the vicinity of the spill or released vapor. Pump with explosion-proof equipment. Use foam to smother or suppress vapors. Warn individuals of any downwind explosion hazard and check the area with a combustible gas detector before reentering. See Environmental, Health, and Physical Hazard Information.
- **In case of fire** – Isolate the fire and deny any unnecessary entry into the area. Use water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam to fight the fire. Alcohol-resistant foams are preferred. Do not use a direct water stream as it may spread the fire. During a fire, smoke may contain the original material in addition to combustion products that may be toxic and/or irritating; combustion products may include, and are not limited to, nitrogen oxides, carbon monoxide, and carbon dioxide. Violent steam generation or eruption may occur upon application of a direct water stream. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Ignition and/or flashback may occur. Flammable mixtures may exist within the vapor.
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space of containers at room temperature, and flammable concentrations of vapor can accumulate at temperatures above the flash point. Firefighters should wear positive-pressure, self-contained breathing apparatus and protective firefighting clothing and avoid contact with this product. If contact is likely, firefighters should wear positive-pressure, self-contained breathing apparatus with full chemical-resistant firefighting clothing and fight the fire from a remote location. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

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

Health Information

**Eye contact** – Contact may cause severe eye irritation with corneal injury that may result in permanent impairment of vision, even blindness. Chemical burns may occur.

**Skin contact** – Brief contact may cause skin burns with pain, severe local redness, and tissue damage. This product is classified by the U.S. Department of Transportation (DOT) as corrosive to the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts. This product has demonstrated the potential for contact allergy in animal testing.

**Inhalation** – At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause severe irritation of the upper respiratory tract (nose and throat).

**Ingestion** – This product has low toxicity if swallowed. However, swallowing may result in gastrointestinal irritation or ulceration.

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

Environmental Information

SYNHAPUR™ Amine Intermediate has low volatility and evaporates slowly if released to the environment. Because this product is miscible in water, once introduced, it will tend to remain in water.

SYNHAPUR Amine Intermediate is unlikely to persist in the environment. It is expected to biodegrade very slowly in the environment, including wastewater treatment plants.

SYNHAPUR Amine Intermediate is not likely to accumulate in the food chain (bioconcentration potential is low) and is slightly toxic to fish and aquatic organisms on an acute basis (LC₅₀/EC₅₀ between 10 and 100mg/L in the most sensitive species tested).

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

Physical Hazard Information

SYNHAPUR™ Amine Intermediate is stable under recommended storage and normal use conditions. Liquid and vapor are flammable. Exposure to elevated temperatures can cause the product to decompose. Avoid moisture. The product absorbs carbon dioxide from the air; the reaction with carbon dioxide may form carbonate salts.

Avoid contact with acid chlorides, strong acids, strong oxidizers, metals such as aluminum, zinc, copper, copper alloys, and galvanized metals. Avoid unintended contact with halogenated hydrocarbons.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.
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Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of SYNTHAPUR™ amine intermediate. 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
- Safety Data Sheet (www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (www.dow.com/angus/contact/)

For more business information about SYNTHAPUR™ amine intermediate, visit the ANGUS™ Products and Applications web site at www.dow.com/angus/prod.

References
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NOTICES

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