

Product Safety Summary

Ultramid[®] Nylon

This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the Summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

Chemical Identity

Abbreviation:	Ultramid Nylon
CAS Number:	25038-54-4
Common Names:	Polycaprolactam Nylon 6 Polyamide 6 (PA6)

Product Overview

- Ultramid Nylon is sold as colorless, odorless pellets. It is a polymer of caprolactam.
- Ultramid is BASF's trade name for its line of polyamide (PA) products. These products are used in synthetic fibers for carpets and textiles, food packaging, injection molded parts for automotive and consumer applications, wire and cable jacketing, as well as monofilaments for weed trimmer line, fishing line, and other applications.
- Workers handle heated nylon in industrial situations; consumer exposure to nylon is generally limited to contact with solid articles made from the resin.
- Hazards in the workplace are limited to exposures from molten material, which may result in thermal burns or potential exposure to caprolactam vapors. No consumer hazards are anticipated.
- The Occupational Safety and Health Administration has not established a Permissible Exposure Limit for caprolactam. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) is 5 mg per cubic meter of air as an Inhalable fraction and vapor for 8 hours. Several states, including Alaska, Michigan and New York enforce an 8 hour limit of 1mg/m³ for dusts and 5 ppm for vapors.
- For further safety and health information, request the current Material Safety Data Sheet (MSDS) for this substance.

Physical/Chemical Properties

- Ultramid Nylon has a melting point of about 220°C, or 428°F.
- It is sold as pellets, but consumers encounter it after it has been converted into articles, such as wire jacketing and packaging film.
- Ultramid Nylon is neither combustible nor flammable. At temperatures above 300 °C, it may emit carbon monoxide and hydrogen cyanide.
- However, because fine particles may be present in Ultramid packaging, industrial workers must take precautionary measures to avoid static discharges and possible explosions.
- It is not soluble in water.

Health Information

Acute Hazards

Exposure to caprolactam vapors during processing may cause irritation of the eyes, skin and mucous membranes of the respiratory tract. Exposure to high concentrations can cause dizziness, headache and nausea. Animal studies indicate that overexposure to caprolactam may cause liver and kidney injury. There are no hazards associated with consumer contact with articles made from Ultramid.

Effects on Respiratory System:

Workers exposed to caprolactam vapors may experience irritation of the nasal passages, throat and respiratory tract. No consumer exposures are anticipated.

Effects on Eyes:

Worker exposure to caprolactam vapors and dusts may cause eye irritation. No consumer exposures are anticipated.

Effects on Skin:

In industrial situations, hot molten nylon 6 may cause thermal burns. There are no hazards associated with consumer contact with articles made from Ultramid.

Effects on Ingestion:

There are no hazards associated with industrial or consumer contact with articles made from nylon 6.

Chronic Hazards

Chronic (repeated) exposure to caprolactam has been reported to cause irritation, headaches and dermatitis in overexposed workers. Caprolactam was not teratogenic or embryotoxic in rats and rabbits when given orally at high doses. It has been reported to cause liver and kidney damage in animal studies. Several studies indicate that caprolactam does not cause cancer in humans. The International Agency for Research on Cancer (IARC) has included it in Group 4 (agents (mixtures) probably not carcinogenic to humans).

There are no hazards associated with industrial or consumer contact with articles made from Ultramid.

Environmental Information

Spills should be collected and disposed of in accordance with local, state and federal requirements.

Additional Hazard Information

Take precautionary measures against static discharges.

The following safety recommendations must be observed:

- Maintain a dust-free workplace and avoid generating dusts during handling.
- Maintain adequate ventilation in all work areas to control potential caprolactam vapors during heating and extrusion operations.
- Provide adequate firefighting equipment, including automatic sprinklers, in work and storage areas.

Exposure Potential

During industrial processing, workplace exposure to caprolactam vapors must be limited through the use of engineering controls, such as ventilation and hoods. In general, skin and eye exposures are prevented through the use of protective eye and face equipment and impermeable gloves and clothing.

Risk Management

Workers handling Ultramid Nylon can safely work with this material if adequately instructed and educated regarding proper handling procedures.

Ventilation must be available in work areas to control potential airborne dust and vapor exposures to acceptable levels.

Federal/Science Findings - Information for caprolactam

US Environmental Protection Agency (EPA)

<http://www.epa.gov/iris/subst/0357.htm>

National Institute for Occupational Safety and Health (NIOSH)

<http://www.cdc.gov/niosh/npg/npgd0097.html>

<http://www.epa.gov/ttn/atw/hlthef/caprolac.html>

Contact Information

<http://www.basf.com>

MSDS

http://worldaccount.basf.com/wa/PublicMSDS~en_US/Search

References

Technical Bulletin Ultramid® Grades in Extrusion. The material of choice for demanding requirements in the packaging and extrusion field. BASF Corporation.

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