

## PRODUCT SAFETY SUMMARY:

### Methoxypropylamine (MOPA)

*This Product Safety Summary is intended to provide a general description of certain Huntsman chemical substances and products containing the chemical substance(s). The information in this Summary is not intended to replace the information included on the Safety Data Sheet (SDS), Product Safety Label, and other safe use and handling literature for the chemical substance(s).*

### Chemical Identity

Name	Other Identifiers	Commercial name
Methoxypropylamine (MOPA)	3-methoxypropan-1-amine CAS# 5332-73-0	MOPA

### Structure



MOPA

### General Product Overview:

MOPA is marketed by Huntsman for industrial and professional use, to produce substances and articles for downstream users. MOPA is a substituted propylamine produced by the reaction of acrylonitrile with methanol, which is subsequently hydrogenated. MOPA is purified by distillation. The substance is used as an intermediate in an industrial setting, however, MOPA may be reformulated and reacted by downstream users into products used by professionals and consumers.

### Applications and Uses:

Due to its chemical properties MOPA is very versatile and is used for several application such as: intermediate in the production of floor waxes, water treating chemicals, emulsifiers, in water-based paints, as corrosion inhibitor, textile additive, in the production of polyamide resins and other products.

### Physical and Chemical Properties:

Methoxypropylamine (MOPA) is a clear, colorless slightly viscous liquid with a typical ammonia-like odor. It is completely soluble in water.

Certain physical properties of MOPA are summarized below;

Physical/Chemical Property	Result
Molecular weight	89.1
Boiling point, 760 mm Hg, °C	116
Freezing point, °C	-76
Vapor pressure, mmHg, 20°C	6
Density, g/ml, 20°C	0.87
Water solubility (%)	>10
Flash point, °C	27
pH	11

Additional physical and chemical property information is available on the product Safety Data Sheet (SDS), which can be requested at [SDS@huntsman.com](mailto:SDS@huntsman.com).

Effect Assessment	Result
Flammable Liquid	Category 3

### Human Health Information:

The probability of experiencing health effects associated with exposure to MOPA is controlled, provided the recommendations stated in the Safety Data Sheet are enforced. Adverse health effects are subject to dose level, route, and duration of exposure. MOPA is classified as corrosive to the skin and eye, skin sensitizer and harmful if swallowed. It is harmful to aquatic life.

Different regulatory classification criteria apply in different geographic regions. These different criteria may result in different human health regulatory classifications for the same product in different geographic regions. Specific regulatory classification information is contained in the Safety Data Sheet for each product in use in specific geographic region. The acute and chronic health effects information set forth below is based on UN GHS.

All instructions found on the packaging should be followed. MOPA is safe when used appropriately. The uses identified for the substance have been assessed as safe under several regulatory programs.

**Summary- Toxicological data:**

Effect Assessment	Result
Acute Oral Toxicity	Category 4
Skin Corrosion	Category 1A
Eye Damage	Category 1
Skin Sensitization	1 B
Genotoxicity	Does not cause genetic defect

Note: For more information on the health hazards of this substance and recommended protective equipment, please refer to the relevant SDS.

**Acute Health Effects:**

Likelihood/frequency of oral, dermal and inhalation exposures are low, if used under strictly recommended conditions and in a closed process.

Due to the high pH, almost any ocular contact with any MOPA may cause irreparable damage, even blindness. Acute accidental dermal exposure to MOPA may cause severe skin burns. Exposures may also cause allergic skin reactions in some individuals.

Acute dermal toxicity of MOPA is low. The dermal LD50 from several studies is > 2000 mg/kg for MOPA.

Acute oral toxicity of MOPA is moderate. The oral LD50 for rats is 688 mg/kg.

**Chronic Health Effects:**

Based on the results of the animal studies the chronic effect observed after repeated exposure of MOPA were related to the corrosive properties of the substance and included damage to the

gastro-intestinal tract and in some cases to the respiratory tract. No effects on reproduction or fertility were observed in the rats exposed orally to MOPA. Extensive genetic toxicity studies conducted with MOPA indicates that it does not cause genetic defects.

#### Environmental Information:

##### Summary: Ecotoxicological Data

Effect Assessment	Result
Short term toxicity to fish	Not harmful to fish.
Short term toxicity to aquatic invertebrates	Category 3
Toxicity to aquatic plants	Category 3

MOPA is an industrial raw material. During normal operating conditions, procedural and/or control technologies are used to minimize emissions and potential exposure to MOPA. The substance can be harmful to aquatic species including daphnids and aquatic plants.

#### Environmental Fate:

##### Summary: Environmental fate and pathway

Effect Assessment	Result
Abiotic Degradation - Hydrolysis as a function of pH	Hydrolytically stable
Biodegradability	Not readily Biodegradable, Inherently biodegradable
Adsorption on soil and sediment	Low adsorption potential

MOPA is hydrolytically stable and not readily biodegradable in freshwater. However, it is inherently biodegradable. It has a low adsorption potential on soil and sediment. MOPA will not bioaccumulate. MOPA has low vapor pressures and releases via air are unlikely.

#### Potential Consumer Exposure:



Huntsman does not market MOPA directly for consumer use. However, MOPA may be formulated or reacted into products used by professionals and consumers. The substance has been assessed as safe for downstream use when the provisions laid down in the SDS are followed carefully.

### **Potential Occupational Exposure:**

During normal operating conditions, occupational exposure to MOPA is not expected in the manufacturing process. Procedural and/or control technologies are used to minimize exposure during sampling, cleaning, maintenance, or in more open handling systems. Appropriate engineering controls (such as ventilation) and personal protective equipment should be used in accordance with the exposure guidelines and workplace practices identified in the Safety Data Sheet.

### **Safe Use Recommendations/Workplace Exposure Controls**

#### **Workplace exposure:**

Exposure can occur either in a manufacturing facility or in the various industrial facilities that use MOPA. Workers in industrial operations could be exposed during maintenance, sampling, testing, or other procedures. Workplace exposure is controlled and minimized by use of proper occupational handling procedures and personal protection and safety equipment. The exposure has been assessed as safe if the substance is used as directed on the label.

Huntsman follows and recommends that customers follow workplace exposure guidelines through a variety of industrial hygiene and ventilation measures. The substance has been assessed as safe for professional and industrial use, when the provisions laid down in the SDS are followed carefully.

Potential routes of worker exposure to MOPA are through dermal contact and to a minor extent, through inhalation in spray application. Ingestion is not an anticipated route of exposure. Within this assessment, both industrial workers and trained professionals are evaluated. In general, all the worker situations are controlled to avoid any direct contact with the MOPA through process engineering controls or by use of personal protective equipment (PPE).

Likelihood/frequency of skin and inhalation exposure is low, due to its usage under strictly controlled conditions and closed process. However, the use of gloves, safety goggles, and impervious clothing is strongly advised and highlighted in the SDS.

### **EU REACH Status:**


MOPA has been registered under the European REACH Regulation EC/1907/2006 and the substance was found to be safe for the uses identified.

#### **Regulatory Information/Classification and Labeling:**

Regulations exist that govern manufacture, sales, transportation, use and disposal of MOPA. These regulations may vary by city, state, country or geographic region. Information can be found by referring the relevant SDS.

Under the UN GHS for Hazard Communication, substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the Safety Data Sheets. UN GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

#### **Labeling of MOPA according to UN GHS:**

<b>Hazard statement</b>	H226: Flammable liquid and vapour. H302: Harmful if swallowed. H314: Causes severe skin burns and eye damage. H318: Causes serious eye damage. H317: May cause an allergic skin reaction. H402 Harmful to aquatic life.
<b>Signal word</b>	Danger
<b>Hazard pictogram</b>	

The hazard statements and symbols presented here refer to the hazard properties of the concentrated substance and are meant to provide a brief overview of the substance's labeling. It is not intended to be comprehensive or to replace information found in the Safety Data Sheet.

#### **References:**

Information on registered substances is available on the European Chemicals Agency (ECHA) website at <https://echa.europa.eu/registration-dossier/-/registered-dossier/13449/1/1>

- Huntsman regional SDSs for MOPA
- Huntsman Technical Bulletins for MOPA

#### **Disclaimer:**



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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity, and behavior of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity, and behavior should be determined by the user and made known to handlers, processors, and end users.

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