

SECTION 1: Identification

1.1 GHS Product identifier

Product name N-(hydroxymethyl)acrylamide

1.2 Other means of identification

Product number -

Other names 2-Propenamide, N-(hydroxymethyl)-; N-Methylolacrylamide

1.3 Recommended use of the chemical and restrictions on use

Identified uses Adhesives and sealant chemicals, Processing aids, not otherwise listed

Uses advised against no data available

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral

Skin sensitization, Category 1

Germ cell mutagenicity, Category 1B

Carcinogenicity, Category 1B

Reproductive toxicity, Category 2

Specific target organ toxicity â€“ repeated exposure, Category 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed

H317 May cause an allergic skin reaction

H340 May cause genetic defects

H350 May cause cancer

H361 Suspected of damaging fertility or the unborn child

H372 Causes damage to organs through prolonged or repeated exposure

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P203 Obtain, read and follow all safety instructions before use.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P333+P317 If skin irritation or rash occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.

P318 IF exposed or concerned, get medical advice.

P319 Get medical help if you feel unwell.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
N-(hydroxymethyl)acrylamide	N-(hydroxymethyl)acrylamide	924-42-5	213-103-2	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound include irritation of the eyes, skin, mucous membranes and upper respiratory tract. Compounds of this class cause peripheral neuropathies, paresthesias, weakness in lower limbs and bluish, sweaty cold hands with erythema and peeling of the palms. ACUTE/CHRONIC HAZARDS: The vapor or mist of this compound is irritating to the skin, eyes, mucous membranes and upper respiratory tract. In aqueous solution, this compound is readily absorbed through the skin. When heated to decomposition it emits toxic fumes of carbon dioxide, carbon monoxide and nitrogen oxides. (NTP, 1992)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist respirations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Activated charcoal is not effective . Do not attempt to neutralize because of exothermic reaction. Cover skin burns with dry, sterile dressings after decontamination . Organic acids and related compounds

SECTION 5: Fire-fighting measures**5.1 Suitable extinguishing media**

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

5.2 Specific hazards arising from the chemical

Literature sources indicate that this chemical is nonflammable. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from acids. Store only if stabilized. Store in an area without drain or sewer access.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Occupational Exposure limit values**

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	N-methylolacrylamide is a colorless or yellow aqueous solution.
Colour	no data available
Odour	no data available
Melting point/freezing point	5Å°C(lit.)
Boiling point or initial boiling point and boiling range	277Å°C(lit.)
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	>93Å°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 68.9Å° F (NTP, 1992)
Partition coefficient n-octanol/water	-1.81 (calculated)
Vapour pressure	Pa at 25Å°C: 0.03 (negligible)
Density and/or relative density	1.074g/mL at 25Å°C
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance may polymerize due to heating and under the influence of acids. Decomposes on burning. This produces toxic fumes including nitrogen oxides.

10.2 Chemical stability

May undergo spontaneous combustion in storage.

10.3 Possibility of hazardous reactions

AMONG 4 FIBER DRUMS OF THIS CHEMICAL /N-HYDROXYMETHYLACRYLAMIDE/, 2 OF WHICH HAD NEVER BEEN OPENED, EXCESSIVE HEAT, SMOKE, CRACKLING & SMALL FLAME WERE NOTED. VERY SMALL AMOUNTS OF CONTAMINANT ARE BELIEVED TO HAVE CATALYZED THIS POLYMERIZATION REACTION, BUT STORAGE IN EXCESSIVELY HEATED AREAS CAN ALSO START THE REACTION.N-METHYLOLACRYLAMIDE may be sensitive to prolonged exposure to light. Polymerization and generation of heat and flames may occur on exposure to to heat or contaminants. Incompatible with strong oxidizers. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Excessive heat, smoke, flames, and cracking noise were emitted from stored fibre drums of the monomer, some unopened. Polymerization may have been initiated by minor contaminants (perhaps as vapors), and/or by excessively warm storage conditions.

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /nitrogen oxides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 474 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes and skin. The substance may cause effects on the nervous system.

STOT-repeated exposure

The substance may have effects on the peripheral nervous system. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.2 UN Proper Shipping Name

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
N-(hydroxymethyl)acrylamide	N-(hydroxymethyl)acrylamide	924-42-5	213-103-2
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.