

Section 1. Product and Company Identification

Product Name N-Octylamine
CAS Number 111-86-4

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Section 2. Hazards Identification

Classification of the substance or mixture
According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Flam. Liq. 3 - Flammable liquid
Acute Tox. 3 (Oral) - Acute toxicity
Acute Tox. 4 (Inhalation - mist) - Acute toxicity
Acute Tox. 3 (Dermal) - Acute toxicity
Skin Corr./Irrit. 1A - Skin corrosion/irritation
Eye Dam./Irrit. 1 - Serious eye damage/eye irritation
STOT SE 3 (irritating to respiratory system) - Specific target organ toxicity - single exposure

GHS Label Elements

Pictograms:



Signal word: Danger

Hazard and precautionary statements

Hazard Statement

H226 Flammable liquid and vapour.
H311 Toxic in contact with skin.
H332 Harmful if inhaled.
H301 Toxic if swallowed.
H335 May cause respiratory irritation.
H314 Causes severe skin burns and eye damage.



Precautionary Statements (Prevention)

- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P271 Use only outdoors or in a well-ventilated area.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P260 Do not breathe dust/gas/mist/vapors.
- P243 Take precautionary measures against static discharge.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P270 Do not eat, drink or smoke when using this product.
- P264 Wash with plenty of water and soap thoroughly after handling.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.

Precautionary Statements (Response)

- P310 Immediately call a POISON CENTER or doctor/physician.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P303 + P361 + P352 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- P370 + P378 In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage)

- P233 Keep container tightly closed.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

Precautionary Statements (Disposal)

- P501 Dispose of contents/container to hazardous or special waste collection point.

Emergency Overview

DANGER: CORROSIVE. FLAMMABLE LIQUID. TOXIC. CAUSES EYE BURNS. CAUSES SKIN BURNS.

Causes digestive tract burns.

Use with local exhaust ventilation.

Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator.

Wear NIOSH-certified chemical goggles.

Wear protective clothing.

Eye wash fountains and safety showers must be easily accessible.

Wear full face shield if splashing hazard exists.

Wear chemical resistant protective gloves.

Section 3. Composition / Information on Ingredients

Common Name N-Octylamine
CAS Number 111-86-4

COMPONENT	CAS NUMBER	CONCENTRATION
Octylamine	111-86-4	≥ 99.0%
Octan-1-ol	111-87-5	≤ 0.2%
Water	7732-18-5	≤ 0.2%
Heptane	142-82-5	≤ 0.2%
Octane	111-65-9	≤ 0.2%
Hexylamine	111-26-2	≤ 0.2%
2-Ethylhexylamine	104-75-6	≤ 0.2%

Section 4. First Aid Measures

General Advice: First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

Inhalation: Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

Skin Contact: Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

Eye Contact: Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

Ingestion: Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms: The most important known symptoms and effects are described in the labelling. Further symptoms are possible.

Note to Physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Section 5. Firefighting Measures

Extinguishing Media

Suitable Extinguishing Media: Foam, dry powder, carbon dioxide, water spray

Special Hazards arising from the Substance or Mixture during Firefighting: No particular hazards known.



Protective Equipment for Firefighting: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information: Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures: Avoid inhalation. Avoid contact with the skin, eyes and clothing.

Environmental Precautions: Substance/product is RCRA hazardous due to its properties. Do not discharge into drains/surface waters/groundwater.

Methods and Material for Containment and Cleaning up: Spills should be contained, solidified, and placed in suitable containers for disposal.

Section 7. Handling and Storage

Precautions for safe Handling: Keep away from sources of ignition - No smoking. Ensure thorough ventilation of stores and work areas.

Protection against Fire and Explosion: Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for Safe Storage, including any Incompatibilities: Segregate from acids and acid forming substances.

Suitable Materials for Containers: Carbon steel (Iron), Stainless steel 1.4301 (V2), Stainless steel 1.4541, Stainless steel 1.4401, Stainless steel 1.4571, Low density polyethylene (LDPE), High density polyethylene (HDPE), glass

Further Information on Storage Conditions: Avoid extreme heat. Keep away from sources of ignition - No smoking.

Storage Stability

Storage Duration: 24 Months

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

Section 8. Exposure Controls / Personal Protection

Components with Occupational Exposure Limits

Octane

OSHA PEL: 500 ppm; 2,350 mg/m³

ACGIH TLV - TWA: 300 ppm

Heptane

OSHA PEL: 500 ppm; 2,000 mg/m³

ACGIH TLV - TWA: 400 ppm

ACGIH TLV - STEL: 500 ppm

Advice on System Design: Provide local exhaust ventilation to control vapors/mists.

Personal Protective Equipment

Respiratory Protection: Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator. Do not exceed the maximum use concentration for the respirator face piece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full face piece pressure demand self-contained breathing apparatus (SCBA) or a full face piece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand Protection: Chemical resistant protective gloves

Eye Protection: Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Section 9. Physical and Chemical Properties

Form: Liquid

Odor: Faint odor, ammonia-like

Odor Threshold: Not determined due to potential health hazard by inhalation.

Color: Colorless to yellow

pH Value: No data available.

Melting Point: -1°C

Boiling Point: 178.49°C

Flash Point: 58°C

Flammability: Flammable liquid and vapor.

Lower Explosion Limit: For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15°C below the flash point.

Upper Explosion Limit: For liquids not relevant for classification and labelling.

Auto-ignition Temperature: 275°C

Vapor Pressure (51.37°C): 7 hPa

Vapor Pressure (20°C): 0.81 hPa

Density (25°C): 0.779 g/cm³

Partitioning Coefficient, n-Octanol/Water (log Pow, 20°C): 3.46

Self-ignition Temperature: Not self-igniting

Thermal Decomposition: 165 °C, 20 kJ/kg; 370 °C, 90 kJ/kg; 460 °C, > 190 kJ/kg

Thermal decomposition above the indicated temperature is possible self-accelerating reaction. It is not a self-decomposable substance.

Dynamic Viscosity (20°C): 1.371 mPa.s

Particle Size: The substance / product is marketed or used in a non-solid or granular form.

Solubility in Water (20°C): 320 mg/L

Molar Mass: 129.25 g/mol

Evaporation Rate: Value can be approximated from Henry's Law Constant or vapor pressure.

Section 10. Stability and Reactivity

Reactivity

Corrosion to Metals: Corrosive effects to metal are not anticipated.

Oxidizing Properties: Not fire-propagating

Formation of Flammable Gases: Forms no flammable gases in the presence of water.

Chemical Stability

Possibility of Hazardous Reactions: The product is chemically stable.

Conditions to Avoid

Avoid all Sources of Ignition: Heat, sparks, open flame. Avoid electro-static charge.

Incompatible Materials: Mineral acids

Hazardous Decomposition Products

Decomposition Products: Possible thermal decomposition products: carbon monoxide, carbon dioxide, toxic gases/vapors, nitrogen oxides.

Thermal Decomposition: 165°C; 370°C; 460°C

Thermal decomposition above the indicated temperature is possible self-accelerating reaction. It is not a self-decomposable substance.

Section 11. Toxicological Information

Primary Routes of Exposure: Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute Toxicity: Of high toxicity after single ingestion. Of pronounced toxicity after short-term skin contact. Of moderate toxicity after short-term inhalation.

Oral

Type of Value: LD50

Species: Rat (male/female)

Value: < 200 mg/kg (similar to OECD guideline 401)

Inhalation

Type of Value: LC50

Species: Rat (male/female)

Value: 1.6 mg/l

Exposure time: 4 h

An aerosol was tested.

Species: Rat

Value: (IRT)

Exposure Time: 1h

No Mortality within the stated exposition time as shown in animal studies, however, deaths occurred after longer exposure.

Dermal

Type of Value: LD50

Species: Rabbit

Value: 200 - 2,000 mg/kg

Literature data.

Assessment other Acute Effects

Assessment of STOT Single: Causes temporary irritation of the respiratory tract.

Irritation/Corrosion

Assessment of Irritating Effects: Highly corrosive! Damages skin and eyes.

Skin

Species: Rabbit

Result: Strongly corrosive

Method: Similar to OECD guideline 404

Eye

Species: Rabbit

Result: Strongly corrosive

Method: Similar to OECD guideline 405

Sensitization

Assessment of Sensitization: Skin sensitizing effects were not observed in animal studies.

Mouse Ear Swelling Test (MEST)

Species: Mouse

Result: Non-sensitizing.

Aspiration Hazard: No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated Dose Toxicity

Assessment of Repeated Dose Toxicity: No adverse effects were observed after repeated oral exposure in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Genetic Toxicity

Assessment of Mutagenicity: The substance was not mutagenic in bacteria. No mutagenic effect was found in various tests with mammalian cell culture and mammals. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Carcinogenicity

Assessment of Carcinogenicity: No data available concerning carcinogenic effects.

Reproductive Toxicity

Assessment of Reproduction Toxicity: The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening test (OECD 421/422). The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Teratogenicity

Assessment of Teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies. The results were determined in a Screening test (OECD 421/422). The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling

Medical Conditions Aggravated by Overexposure: Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product.

Section 12. Ecological Information

Toxicity

Aquatic Toxicity: Very toxic (acute effect) to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to Fish

LC50 (96 h) 17.8 mg/l, *Leuciscus idus* (DIN 38412 Part 15)

The details of the toxic effect relate to the nominal concentration.

LC50 (96 h) 5.19 mg/l, *Pimephales promelas* (Fish test acute)

The statement of the toxic effect relates to the analytically determined concentration. Literature data.

Aquatic Invertebrates

EC50 (48 h) 3.24 mg/l, *Daphnia magna* (Directive 92/69/EEC, C.2, static)

The details of the toxic effect relate to the nominal concentration.



Aquatic Plants

EC50 (72 h) 0.23 mg/l (growth rate), Scenedesmus subspicatus (Guideline 92/69/EEC, C.3) The details of the toxic effect relate to the nominal concentration.

EC10 (72 h) 0.07 mg/l (growth rate), Scenedesmus subspicatus (Guideline 92/69/EEC, C.3) The details of the toxic effect relate to the nominal concentration.

Chronic Toxicity to Fish: No data available regarding toxicity to fish. Study scientifically not justified.

Chronic Toxicity to Aquatic Invertebrates: No data available regarding toxicity to daphnids. Study does not need to be conducted.

Assessment of Terrestrial Toxicity: No data available concerning terrestrial toxicity. Study does not need to be conducted.

Microorganisms/Effect on Activated Sludge

Toxicity to Microorganisms

OECD Guideline 209 aerobic

Activated sludge, industrial/EC20 (30 min): approx. 200 mg/l

The details of the toxic effect relate to the nominal concentration.

Persistence and Degradability

Assessment Biodegradation and Elimination (H₂O): Readily biodegradable (according to OECD criteria).

Elimination Information: 99 % DOC reduction (11 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic) Readily biodegradable (according to OECD criteria).

Photodegradation: $t_{1/2}$ (Indirect photolysis) 10 h; OH radical (calculated). After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes.

Bioaccumulation Potential: Accumulation in organisms is not to be expected.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.



Section 14. Transport Information

Land Transport

US DOT

Hazard Class: 8

Packing Group: I

ID Number: UN 2734

Hazard Label: 8, 3, EHSM

Proper Shipping Name: Amines, Liquid, Corrosive, Flammable, N.O.S. (contains N-Octylamine)

Sea Transport

IMDG

Hazard Class: 8

Packing Group: I

ID Number: UN 2734

Hazard Label: 8, 3, EHSM

Marine Pollutant: Yes

Proper Shipping Name: Amines, Liquid, Corrosive, Flammable, N.O.S. (contains N-Octylamine)

Air Transport

IATA/ICAO

Hazard Class: 8

Packing Group: I

ID Number: UN 2734

Hazard Label: 8, 3

Proper Shipping Name: Amines, Liquid, Corrosive, Flammable, N.O.S. (contains N-Octylamine)

Section 15. Regulatory Information

Federal Regulations

Registration Status

US TSCA: Released/Listed

EPCRA 311/312 (Hazard categories): Fire; Acute

CERCLA RQ: 100 lbs

CAS Number: 111-26-2; 111-65-9; 142-82-5

Chemical Name: Hexylamine; octane; heptane



State Regulations

State RTK	CAS Number	Chemical Name
MA, PA	111-86-4	Octylamine
PA	111-87-5	Octan-1-ol
MA, NJ, PA	142-82-5	Heptane
MA, NJ, PA	111-65-9	Octane
MA, NJ, PA	111-26-2	Hexylamine
MA, NJ, PA	104-75-6	2-ethylhexylamine

HMIS Rating

Health: 3
Flammability: 2
Reactivity: 0

NFPA Rating

Health: 3
Flammability: 2
Instability: 0

Assessment of the Hazard Classes according to UN GHS Criteria (most recent version):

Acute Tox. 4 (Inhalation - mist) - Acute toxicity
Skin Corr./Irrit. 1A - Skin corrosion/irritation
Aquatic Acute 1 - Hazardous to the aquatic environment - acute
Flam. Liq. 3 - Flammable liquid
STOT SE 3 (irritating to respiratory system) - Specific target organ toxicity - single exposure
Acute Tox. 3 (dermal) - Acute toxicity
Acute Tox. 3 (oral) - Acute toxicity
Aquatic Chronic 2 - Hazardous to the aquatic environment - chronic
Eye Dam./Irrit. 1 - Serious eye damage/eye irritation

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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