

Section 1. Product and Company Identification

Product Name 2-Ethylhexylamine
CAS Number 104-75-6

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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 liquids
Acute Tox. 2 (Inhalation - vapor) Acute toxicity
Acute Tox. 4 (oral) Acute toxicity
Acute Tox. 3 (dermal) Acute toxicity
Skin Corr./Irrit. 1A Skin corrosion/irritation
Eye Dam./Irrit. 1 Serious eye damage/eye irritation

GHS Label Elements, Including Precautionary Statements

Pictograms:



Signal Word: Danger

Hazard and Precautionary Statements

Hazard Statement

H226 Flammable liquid and vapor.
H311 Toxic in contact with skin.
H330 Fatal if inhaled.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary Statements (Prevention)



P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P260 Do not breathe mist or vapor.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
No smoking.
P284 [In case of inadequate ventilation] wear respiratory protection.
P260 Do not breathe dust or mist.
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.
P242 Use only non-sparking tools.
P240 Ground/bond container and receiving equipment.

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): 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.

Hazards not otherwise classified: If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

DANGER.
CORROSIVE.



COMBUSTIBLE LIQUID.
HARMFUL IF SWALLOWED.
HARMFUL IF INHALED.
HARMFUL IF ABSORBED THROUGH SKIN.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.

Corrosive to the skin, eyes and respiratory system.

RISK OF SERIOUS DAMAGE TO EYES.

CAUSES SKIN BURNS.

Avoid contact with the skin, eyes and clothing.

Avoid inhalation of mists/vapors.

Use with local exhaust ventilation.

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

Wear NIOSH-certified chemical goggles.

Wear full face shield if splashing hazard exists.

Wear chemical resistant protective gloves.

Wear protective clothing.

Eye wash fountains and safety showers must be easily accessible.

Section 3. Composition / Information on Ingredients

Common Name 2-Ethylhexylamine
Synonym(s) 2-Ethyl-1-hexanamine
Formula C₈H₁₉N
CAS Number 104-75-6

COMPONENT	CAS NUMBER	CONCENTRATION
2-ethylhexylamine	104-75-6	99.0 – 100.0%
bis(2-ethylhexyl)amine	106-20-7	0.2%

Section 4. First Aid Measures

Description of first aid measures

General advice: Remove contaminated clothing.

If inhaled: Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin: Wash affected areas with water while removing contaminated clothing. Remove contaminated clothing. Immediate medical attention required.

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

If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.



Indication of any immediate medical attention and special treatment needed

Note to physician: Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. Pulmonary odema prophylaxis. Medical monitoring for at least 24 hours.

Section 5. Firefighting Measures

Personal precautions, protective equipment and emergency procedures:

Breathing protection required. Avoid contact with the skin, eyes and clothing.

Environmental precautions: Do not discharge into drains/surface waters/groundwater.

Substance/product is RCRA hazardous due to its properties.

Methods and material for containment and cleaning up: Spills should be contained, solidified, and placed in suitable containers for disposal.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Breathing protection required. Avoid contact with the skin, eyes and clothing.

Environmental precautions: Do not discharge into drains/surface waters/groundwater.

Substance/product is RCRA hazardous due to its properties.

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: Vapors may form explosive mixture with air. 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. Segregate from oxidants.

Suitable materials for containers: Stainless steel 1.4401, Stainless steel 1.4301 (V2), Carbon steel, (Iron), glass

Further information on storage conditions: **Avoid** extreme heat. Keep away from sources of ignition - No smoking.

Storage stability

Storage temperature: 20°C

Storage duration: 24 Months

Section 8. Exposure Controls / Personal Protection

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 facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions. Wear a NIOSH-certified (or equivalent) organic vapor respirator.

Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection: Chemical resistant protective gloves, nitrile rubber (Buna N), fluoroelastomer (Viton), Consult with glove manufacturer for testing data.

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

Body protection: Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures: Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact.

Section 9. Physical and Chemical Properties

Form: Liquid

Odour: Amine-like

Odour threshold: Not determined since toxic by inhalation.

Colour: Colorless

pH value: > 7

Freezing point: < -70°C (760 mm Hg)

Boiling point: 169.8°C (1,013.25 hPa) (measured)

Flash point: 45 - 55°C (closed cup) Literature data.

Flammability: Flammable.

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.

Autoignition: 265°C Literature data.

Vapor pressure: 1.6 hPa (20°C) Literature data.

Density: 0.78 g/cm³ (20°C) Literature data.

Relative density: 0.78 (20°C) Literature data.

Partitioning coefficient n-octanol/water (log Pow): 2.73 (25°C) (calculated) The data refers to the undissociated form of the substance.

Self-ignition temperature: Based on its structural properties the product is not classified as self-igniting.

Thermal decomposition: 455°C, > 250 kJ/kg (DSC (DIN 51007))

Thermal decomposition above the indicated temperature is possible; self-accelerating reaction

Viscosity, dynamic: 1.12 mPa.s (20 °C)

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

Solubility in water: 2.51 g/l (20°C) Literature data.

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 effect on metals.

Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.

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

Chemical stability

Possibility of hazardous reactions: Strong exothermic reaction with acids. Reacts with strong oxidizing agents.

Conditions to avoid

Incompatible materials: strong acids, oxidizing agents

Hazardous decomposition products

Decomposition products: Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxides

Thermal decomposition: 455 °C (DSC (DIN 51007)) Thermal decomposition above the indicated temperature is possible. self-accelerating reaction

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

Assessment of acute toxicity: Of high toxicity after short-term inhalation. Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term skin contact.

Oral

Type of value: LD50

Species: rat

Value: approx. 316 mg/kg

Inhalation

Type of value: LC50
Species: rat (male/female)
Value: < 1.548 mg/l (OECD Guideline 403)
Exposure time: 4 h

Dermal

Type of value: LD50
Species: rabbit
Value: 474 mg/kg (other)

Assessment other acute effects

Assessment of STOT single: The available information is not sufficient for evaluation.

Irritation / corrosion

Assessment of irritating effects: Corrosive! Damages skin and eyes.

Skin

Species: rabbit
Result: Corrosive.

Eye

Species: rabbit
Result: Risk of serious damage to eyes.

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: After repeated administration the prominent effect is the induction of corrosion. 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: No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in a test with 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: Study scientifically not justified.

Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Teratogenicity

Assessment of teratogenicity: Study not necessary due to exposure considerations.

Symptoms of Exposure

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

Assessment of aquatic toxicity: Acutely toxic for aquatic organisms. Depending on local conditions and existing concentrations, disturbances in the biodegradation process of activated sludge are possible.

Toxicity to fish

LC50 (96 h) > 100 mg/l, *Leuciscus idus* (DIN 38412 Part 15, static)

Nominal concentration. The product will cause changes in the pH value of the test system. The result refers to a neutralized sample.

Aquatic invertebrates

EC50 (24 h) 2.2 mg/l, *Daphnia magna* (DIN 38412 Part 11, static)

Nominal concentration. Literature data.

Aquatic plants

EC10 (72 h) 3.4 mg/l (growth rate), *Desmodesmus subspicatus* (OECD Guideline 201, static)

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

EC50 (72 h) 10.8 mg/l (growth rate), *Desmodesmus subspicatus* (OECD Guideline 201, static)

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

Chronic toxicity to fish

Study does not need to be conducted.

Chronic toxicity to aquatic invertebrates

Study does not need to be conducted.

Assessment of terrestrial toxicity

Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 aquatic activated sludge, domestic/EC20 (0.5 h): approx. 85 mg/L

Nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

70 - 80% CO₂ formation relative to the theoretical value (28 d) (ISO 14593) (aerobic, activated sludge, domestic, non-adapted)

Information on Stability in Water (Hydrolysis)

According to structural properties, hydrolysis is not expected/probable.

Bioaccumulative potential

Assessment bioaccumulation potential

No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).

Additional information

The product contains: The heavy-metal content in the product is below the limit values laid down in normative EN 71 Part III.

Other ecotoxicological advice: Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

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

USDOT

Hazard class: 3

Packing group: III

ID number: UN 2276

Hazard label: 3, 8

Proper shipping name: 2-ETHYLHEXYLAMINE

Sea transport

IMDG

Hazard class: 3

Packing group: III

ID number: UN 2276

Hazard label: 3, 8

Marine pollutant: NO

Proper shipping name: 2-ETHYLHEXYLAMINE



Air transport

IATA/ICAO

Hazard class: 3

Packing group: III

ID number: UN 2276

Hazard label: 3, 8

Proper shipping name: 2-ETHYLHEXYLAMINE

Section 15. Regulatory Information

Federal Regulations

Registration status: TSCA, US released / listed

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

State regulations

State RTK CAS Number Chemical name

MA, NJ, PA 104-75-6 2-ethylhexylamine

MA, NJ, PA 104-76-7 2-ethylhexan-1-ol

MA, PA 106-20-7 bis(2-ethylhexyl)amine

NFPA Hazard codes

Health : 3

Fire: 2

Reactivity: 0

Special:

HMIS III rating

Health: 3

Flammability: 2

Physical hazard: 0

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Acute Tox. 2 (Inhalation - vapor) Acute toxicity

Acute Tox. 3 (dermal) Acute toxicity

Skin Corr./Irrit. 1A Skin corrosion/irritation

Aquatic Acute 2 Hazardous to the aquatic environment - acute

Flam. Liq. 3 Flammable liquids

Acute Tox. 4 (oral) Acute toxicity

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.

