# Chemical Safety Data Sheet MSDS / SDS

## Nitroethane SDS

Revision Date:2024-04-25 Revision Number:1



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### Product identifier

Product name: Nitroethane

CAS: 79-24-3

### Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

### Company Identification

Company: Chemicalbook.in

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## SECTION 2: Hazards identification

### Classification of the substance or mixture

Flammable liquids, Category 3
Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Inhalation

**GHS label elements, including precautionary statements**

Pictogram(s)

Signal word Warning

**Hazard statement(s)**

H226 Flammable liquid and vapour
H302 Harmful if swallowed
H332 Harmful if inhaled

**Precautionary statement(s)**

**Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
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.
P271 Use only outdoors or in a well-ventilated area.

**Response**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P317 Get medical help.

**Storage**

P403+P235 Store in a well-ventilated place. Keep cool.

### 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.

### Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### Substance

| | |
|---|---|
| Chemical name: | Nitroethane |
| Common names and synonyms: | Nitroethane |
| CAS number: | 79-24-3 |
| EC number: | 201-188-9 |
| Concentration: | 100% |

## SECTION 4: First aid measures

### Description of necessary first-aid measures

### If inhaled

Fresh air, rest. Refer for medical attention.

### Following skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. 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. Do NOT induce vomiting. Give a slurry of activated charcoal in water to drink. Refer immediately for medical attention. See Notes.

### Most important symptoms/effects, acute and delayed

Inhalation causes moderate irritation of respiratory tract. Ingestion causes irritation of mouth and stomach. Contact with liquid causes irritation of eyes and mild irritation of skin. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aliphatic hydrocarbons and related compounds

## SECTION 5: Firefighting measures

### Suitable extinguishing media

Fire extinguishing agents not to be used: water may be ineffective. "alcohol" foam is not effective.

### Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic oxides of nitrogen may form in fire. (USCG, 1999)

### Special protective actions for fire-fighters

Use powder, foam, carbon dioxide, water spray. In case of fire: keep drums, etc., cool by spraying with water. Combat fire from a sheltered position.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Ventilation. Remove all ignition sources. Do NOT wash away into sewer. Do NOT absorb in saw-dust or other combustible absorbents. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### Environmental precautions

Ventilation. Remove all ignition sources. Do NOT wash away into sewer. Do NOT absorb in saw-dust or other combustible absorbents. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### Methods and materials for containment and cleaning up

Remove all ignition sources. Establish forced ventilation to keep levels below explosive limit. absorb liquids in vermiculite, dry sand, earth, peat, carbon, or a similar material, and deposit in sealed containers.

## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with bases, combustible substances or oxidizing agents. Above 28°C use a closed system, ventilation and explosion-proof electrical equipment. 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.

### Conditions for safe storage, including any incompatibilities

Fireproof. Well closed. Separated from : see Chemical Dangers.Storage Recommendations: Detached storage preferred. Separate from other flammables and oxidizing materials.

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

TLV: 100 ppm as TWA.MAK: 31 mg/m3, 10 ppm; peak limitation category: II(4); skin absorption (H); pregnancy risk group: D.EU-OEL: 62 mg/m3, 20 ppm as TWA; 312 mg/m3, 100 ppm as STEL; (skin)

### Biological limit values

no data available

### 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.

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

**Eye/face protection**

Wear safety goggles.

**Skin protection**

Protective gloves.

**Respiratory protection**

Use ventilation, local exhaust or breathing protection.

**Thermal hazards**

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

| | |
|---|---|
| Physical state: | Nitroethane is a colorless oily liquid with a pleasant odor. Flash point of 82°F. Decomposes above 350°F. Density 1.052 g / cm3. Vapors much heavier than air. and insoluble in water. Vapors may irritate skin, eyes and mucous membranes. Produces toxic oxides of nitrogen during combustion. Used as a propellant and as a solvent. |
| Colour: | Colorless liquid |
| Odour: | Moderate to strong disagreeable odor |
| Melting point/freezing point: | -90°C |
| Boiling point or initial boiling point and boiling range: | 112-116°C |
| Flammability: | Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F. |

| | |
|---|---|
| Lower and upper explosion limit/flammability limit: | Lower= 4.0% by vol in air |
| Flash point: | 28°C |
| Auto-ignition temperature: | 778° F (USCG, 1999) |
| Decomposition temperature: | no data available |
| pH: | pH of 0.01 M aqueous solution at 25 deg C = 6.0 |
| Kinematic viscosity: | 0.661 centipoise at 25 deg C |
| Solubility: | Slightly soluble (NTP, 1992) |
| Partition coefficient n-octanol/water: | log Kow = 0.18 |
| Vapour pressure: | 15.6 mm Hg ( 20 °C) |
| Density and/or relative density: | 1.045 |
| Relative vapour density: | 2.58 (vs air) |
| Particle characteristics: | no data available |

## SECTION 10: Stability and reactivity

### Reactivity

May explode on heating rapidly to high temperature. Mixtures with strong inorganic alkalis, acids and combinations of amines and heavy metal oxides are shock-sensitive. Decomposes on burning. This produces toxic fumes of nitrogen oxides. Reacts with bases, combustible substances and oxidants. This generates fire and explosion hazard. Attacks some forms of plastic.

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Sudden absorption of the anhydous liquid or gas on activated carbon or Hopcalite may result in flames.The nitroparaffins, nitromethane, nitropropane, etc. form salts with inorganic bases such as calcium hydroxide. The dry salts are explosive [Chem. Eng. News 30:2344. 1952]. Nitroethane and other nitro compounds are mild oxidizers and should not be heated with easily oxidizable hydrocarbons under confinement [Chem. Eng. News 30:2344. 1940].

### Conditions to avoid

no data available

### Incompatible materials

Amines; strong acids, alkalis & oxidizers; hydrocarbons; combustibles; metal oxides.

### Hazardous decomposition products

Undergoes thermal decomposition at 335-382 deg C.

## SECTION 11: Toxicological information

### Acute toxicity

Oral: LD50 Mouse oral 860 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 irritating to the eyes and respiratory tract. The substance may cause effects on the blood. This may result in the formation of methaemoglobin. Exposure at high levels could cause lowering of consciousness. The effects may be delayed. Medical observation is indicated.

### STOT-repeated exposure

The substance may have effects on the upper respiratory tract, blood, liver and kidneys.

### Aspiration hazard

A harmful contamination of the air will be reached quickly on evaporation of this substance at 20°C.

## SECTION 12: Ecological information

### 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

### Persistence and degradability

14C-labeled nitroethane at 50 ppb was added to a suspension of activated sludge; 23.9% of the initial nitroethane was mineralized in 5 days(1). Aerobic and anaerobic degradation in soil was measured using 14C-labeled nitroethane(1); under aerobic conditions, 11.3% of the initial nitroethane was mineralized to CO2 after 35 days(1); under anaerobic conditions, nitroethane was not mineralized over a 35 day period(1). In the ready biodegradable closed bottle test (OECD Guideline 301D), nitroethane initially present at 2 mg/L was inoculated with sewage effluent(1); less than 1% degradation of nitroethane was measured after 28 days(1). Nitroethane present at 500 mg/L and inoculated with activated sludge from three municipal treatment plants was toxic to the microorganisms present over the 24 hour study period(2).

### Bioaccumulative potential

A BCF value of 1 was measured for fish (golden orfe (Leuciscus idus)) in a static 3-day test with nitroethane present at 50 ppb(1). According to a classification scheme(2), this BCF value suggests that bioconcentration in aquatic organisms is low(SRC).

### Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of nitroethane can be estimated to be 20(SRC). According to a classification scheme(2), this estimated Koc value suggests that nitroethane is expected to have very high mobility in soil. However, laboratory studies indicate that nitroethane may adsorb to some soil types(SRC). Using a high organic-content peat as a model for soil organic matter, nitroethane had a vapor sorption of nearly 80 mg vapor uptake/g dry peat at a relative pressure of 0.3 at 24 deg C over a 2 to 3 week period; at a relative pressure of 1, a partition capacity of 272 mg/g peat was calculated(3). The nitro group of nitroethane may promote hydrogen bonding to clay and the polarity of the molecule may also allow hydrophilic-coordinative adsorption(4).

### Other adverse effects

no data available

## SECTION 13: Disposal considerations

### 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

### UN Number

ADR/RID: UN2842 (For reference only, please check.)
IMDG: UN2842 (For reference only, please check.)
IATA: UN2842 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: NITROETHANE (For reference only, please check.)
IMDG: NITROETHANE (For reference only, please check.)
IATA: NITROETHANE (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (For reference only, please check.)

### 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.)

### Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

### Special precautions for user

no data available

### Transport in bulk according to IMO instruments

no data available

## SECTION 15: Regulatory information

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

**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**

Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

## SECTION 16: Other information

**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**

In case of fire, intact vessels only to be approached after complete cool down.Depending on the degree of exposure, periodic medical examination is suggested.Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.Use methylene blue therapy in methemoglobinemia.

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. We as supplier shall not be held liable for any