

Chemical Safety Data Sheet MSDS / SDS

1-nitropropane SDS

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

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product identifier**

Product name: 1-nitropropane

CAS: 108-03-2

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

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification**Classification of the substance or mixture**

Flammable liquids, Category 3

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal
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
H312 Harmful in contact with skin
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.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P317 Get medical help.
P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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:	1-nitropropane
Common names and synonyms:	1-nitropropane
CAS number:	108-03-2
EC number:	203-544-9
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

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 one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Inhalation causes headache, dizziness, nausea, vomiting, diarrhea, restlessness, muscular uncoordination and irritation of the respiratory tract. Contact causes irritation of the eyes and skin. Ingestion may cause headache, dizziness, nausea, vomiting, restlessness and muscular uncoordination. (USCG, 1999)

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 ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for shock and treat if necessary . Anticipate seizures and treat as 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 d of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Nitrates, nitrites, and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Use water spray, dry chemical, or carbon dioxide. Use water spray to keep fire-exposed containers cool. Fight fire from protected location or maximum possible distance. nitropropanes

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Combustion products include toxic oxides of nitrogen along with carbon monoxide. Behavior in Fire: Produces toxic gases and vapors. Containers may explode in heat of fire. Vapor explosive hazard indoors, outdoors or in sewer. Runoff to sewer may create fire or explosion hazard. Flashback may occur along vapor trail. (USCG, 1999)

Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

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

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

After covering the spills with soda ash, mix and spray with water. Scoop into a bucket of water and leave it stand for 2 hr. Neutralize with 6 M HCl ...

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 36°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. Separated from strong oxidants and strong bases. Store in a cool, dry, well-ventilated location. Separate from amines, acids, alkalis, oxidizing materials, metal oxides, and combustibles. Outside or detached storage is preferred. nitropropanes

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 25 ppm as TWA; A4 (not classifiable as a human carcinogen). MAK: 7.4 mg/m³, 2 ppm; peak limitation category: I(8); skin absorption (H); pregnancy risk group: D

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 spectacles.

Skin protection

Protective gloves. Protective clothing.

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:	Liquid.
Colour:	Colourless.
Odour:	Somewhat disagreeable odor
Melting point/freezing point:	-104 °C.
Boiling point or initial boiling point and boiling range:	131.2 °C. Atm. press.:1 019 hPa.
Flammability:	Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.

Lower and upper explosion limit/flammability limit:	no data available
Flash point:	36 °C. Atm. press.:101.21 kPa.
Auto-ignition temperature:	> 400 °C. Atm. press.:101.21 kPa.
Decomposition temperature:	no data available
pH:	6.0, 0.01 M aqueous soln @ 25 deg C
Kinematic viscosity:	0.790 cP at 25 deg C
Solubility:	Slightly soluble (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = 0.79. Temperature:22 °C.
Vapour pressure:	13.64 hPa. Temperature:25 °C.
Density and/or relative density:	1 g/cm ³ . Temperature:25 °C.
Relative vapour density:	3.1 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes and gases. Reacts violently with oxidants and strong bases.

Chemical stability

no data available

Possibility of hazardous reactions

Very dangerous fire hazard when exposed to heat, open flame or oxidizers. NITROPROPANE forms salts with inorganic bases such as calcium hydroxide. The dry salts are explosive [Chem. Eng. news 30:2344. 1952].

Conditions to avoid

no data available

Incompatible materials

Metal oxides increase its sensitivity to thermal ignition.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 455 mg/kg

Inhalation: LC50 Rat inhalation 3100 ppm/8 hr

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

A4; Not classifiable as a human carcinogen.

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and respiratory tract.

STOT-repeated exposure

no data available

Aspiration hazard

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

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 227 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 380 mg/L - 48 h.

Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - > 456 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 310 mg/L - 30 min. Remarks: Respiration rate.

Persistence and degradability

AEROBIC: When 1-nitropropane was incubated with activated sludge, 23.3% mineralization occurred in 5 days(1). During a closed bottle biodegradability test, using a municipal sewage plant effluent inoculum, 45% degradation of 1-nitropropane occurred within 28 days(1). Aerobic C14 studies performed with soil microorganisms resulted in 4.6% conversion to CO₂ in 35 days(1). During this

time 21.2% was lost as volatile products(1).

Bioaccumulative potential

A BCF value of 1.3 was measured for fish (Golden ide) in a static 3-day test with 1-nitropropane present at 50 ppb(1). According to a classification scheme(2), this BCF value suggests that bioconcentration in aquatic organisms is low(SRC). Bioconcentration of 1-nitropropane in algae (*Chlorella fusca*) was measured using (14)C-labelled 1-nitropropane at 50 ppb. The algae were irradiated for 24 hours; 92.9% of the radioactivity was present in solution, 1.7% of the radioactivity was associated with the algae(1). A bioconcentration factor of 180 for algae was calculated from this experiment(1).

Mobility in soil

The Koc of 1-nitropropane is estimated as 71(SRC), using a log Kow of 0.87(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 1-nitropropane is expected to have high mobility in soil. The pKa of 1-nitropropane is 8.98(4), indicating that this compound will partially exist in anion form in the environment and anions generally do not adsorb more strongly to organic carbon and clay than their neutral counterparts(5).

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: UN2608 (For reference only, please check.)
IMDG: UN2608 (For reference only, please check.)
IATA: UN2608 (For reference only, please check.)

UN Proper Shipping Name

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

Upper explosive limit is unknown in literature. Protective clothing recommended for > 8 hours: Butyl Rubber, Polyvinyl Alcohol.

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