

## Chemical Safety Data Sheet MSDS / SDS

## 3-nitrotoluene SDS

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

|           |            |            |            |            |            |            |            |
|-----------|------------|------------|------------|------------|------------|------------|------------|
| Section 1 | Section 2  | Section 3  | Section 4  | Section 5  | Section 6  | Section 7  | Section 8  |
| Section 9 | Section 10 | Section 11 | Section 12 | Section 13 | Section 14 | Section 15 | Section 16 |

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

Product name: 3-nitrotoluene

CAS: 99-08-1

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

Relevant identified uses: For R&amp;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**

Acute toxicity - Category 3, Oral

Acute toxicity - Category 3, Dermal

Acute toxicity - Category 3, Inhalation  
Specific target organ toxicity - repeated exposure, Category 2

### GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

### Hazard statement(s)

H301 Toxic if swallowed  
H311 Toxic in contact with skin  
H331 Toxic if inhaled  
H373 May cause 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.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.  
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/...  
P316 Get emergency medical help immediately.  
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P319 Get medical help if you feel unwell.

#### Storage

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

## 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: 3-nitrotoluene

Common names and synonyms: 3-nitrotoluene

CAS number: 99-08-1

EC number: 202-728-6

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. Refer for medical attention .

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

INHALATION, INGESTION OR SKIN ABSORPTION: Headache, flushing of face, dizziness, difficult breathing, cyanosis, nausea, vomiting, muscular weakness, increased pulse and respiratory rate, irritability and convulsions. EYES: Slight irritation. SKIN: Slight irritation. (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. Aromatic hydrocarbons and related compounds

## **SECTION 5: Firefighting measures**

### **Suitable extinguishing media**

To fight fire use water, carbon dioxide, dry chemical.

### **Specific hazards arising from the chemical**

Special Hazards of Combustion Products: Emits toxic fumes of oxides of nitrogen. Behavior in Fire: Emits toxic fumes. (USCG, 1999)

### **Special protective actions for fire-fighters**

Use water spray, powder, foam, carbon dioxide. Combat fire from a sheltered position.

## **SECTION 6: Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. Collect leaking liquid in covered containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### **Environmental precautions**

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. Collect leaking liquid in covered containers. 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**

Ventilate area of spill or leak. For small quantities of liquid nitrotoluene, absorb on paper towels. For small quantities of solid nitrotoluene, sweep onto paper or other suitable material. Remove to a safe place (such as a fume hood) and burn paper. Large quantities of liquid nitrotoluene can be collected and atomized in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device. Large quantities of solid nitrotoluene can be reclaimed; however, if this is not practical, dissolve in a flammable solvent (such as alcohol) and atomize in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device. nitrotoluene

### **SECTION 7: Handling and storage**

#### **Precautions for safe handling**

NO open flames. NO contact with strong oxidizing agents or sulfuric acid. 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**

Separated from strong oxidants, sulfuric acid and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Separated from strong oxidants, sulfuric acid, food and feedstuffs. Cool. Dry. Keep in a well-ventilated room.

### **SECTION 8: Exposure controls/personal protection**

#### **Control parameters**

#### **Occupational Exposure limit values**

TLV: 2 ppm as TWA; (skin); BEI issued. MAK: skin absorption (H); carcinogen category: 3B

#### **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 face shield or eye protection in combination with breathing protection.

**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:                                                   | Clear yellow.                                                                                   |
| Odour:                                                    | Weak, aromatic odor                                                                             |
| Melting point/freezing point:                             | 16.1 °C.                                                                                        |
| Boiling point or initial boiling point and boiling range: | 231.9 °C. Atm. press.:101.3 kPa.;156.9 °C. Atm. press.:13.3 kPa.;50.2 °C. Atm. press.:0.13 kPa. |
| Flammability:                                             | Class IIIB Combustible Liquid: Fl.P. at or above 200°F.                                         |
| Lower and upper explosion limit/flammability limit:       | no data available                                                                               |
| Flash point:                                              | 106 °C. Atm. press.:1 013 mBar.                                                                 |

|                                        |                                                          |
|----------------------------------------|----------------------------------------------------------|
| Auto-ignition temperature:             | 450 °C.                                                  |
| Decomposition temperature:             | no data available                                        |
| pH:                                    | no data available                                        |
| Kinematic viscosity:                   | dynamic viscosity (in mPa s) = 2.33. Temperature:20°C.   |
| Solubility:                            | Insoluble in water                                       |
| Partition coefficient n-octanol/water: | log Pow = 2.4.                                           |
| Vapour pressure:                       | 16 Pa. Temperature:20 °C. Remarks:=-0.16 hPa= 0.016 kPa. |
| Density and/or relative density:       | 1.16. Temperature:20 °C.                                 |
| Relative vapour density:               | 4.73 (vs air)                                            |
| Particle characteristics:              | no data available                                        |

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on burning. This produces toxic gases including carbon monoxide and nitrogen oxides. Reacts with strong oxidants and sulfuric acid. This generates fire and explosion hazard. Attacks plastics, rubber and coatings.

### Chemical stability

Heat contributes/ ... to instability. Nitrotoluene

### Possibility of hazardous reactions

Combustible when exposed to heat, flame or oxidizers.M-NITROTOLUENE reacts with sulfuric acid, strong oxidizing agents and reducing agents.

**Conditions to avoid**

no data available

**Incompatible materials**

Decomposes on contact with strong oxidizers; strong acids; reducing agents; strong bases; ammonia, amines producing toxic fumes, causing fire and explosion hazard. Heat above 190 deg C may cause explosive decomposition. Attacks some plastics, rubbers, and coatings.

**Hazardous decomposition products**

The substance decomposes on burning producing toxic gases, including carbon monoxide and nitrogen oxides.

**SECTION 11: Toxicological information****Acute toxicity**

Oral: LD50 - rat (male) - 2 121 mg/kg bw.

Inhalation: LC50 - rat (male/female) - > 880 mg/m<sup>3</sup> air.

Dermal: LD50 - rat - > 1 157 mg/kg bw.

**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**

Evaluation: There is inadequate evidence in humans for the carcinogenicity of nitrotoluenes. There is inadequate evidence in experimental animals for the carcinogenicity of 3-nitrotoluene. ... Overall evaluation: Nitrotoluenes are not classifiable as to their carcinogenicity to humans (Group 3).

#### **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 blood. This may result in the formation of methaemoglobin. Medical observation is indicated. The effects may be delayed.

#### **STOT-repeated exposure**

no data available

#### **Aspiration hazard**

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

## **SECTION 12: Ecological information**

#### **Toxicity**

Toxicity to fish: LC50 - *Pimephales promelas* - 30 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: LC50 - *Daphnia magna* - 7.5 mg/L - 48 h.

Toxicity to algae: EC50 - *Chlorella pyrenoidosa* - 14 mg/L - 96 h.

Toxicity to microorganisms: EC50 - *Tetrahymena pyriformis* - 50 mg/L - 24 h.

#### **Persistence and degradability**

AEROBIC: 3-Nitrotoluene, present at 100 mg/L, reached 2% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese Ministry of Industry and Trade (MITI) test, which employs a mixed inoculum obtained from freshwater, soil, and sludge(1). Using unacclimated sludge as the inoculum(2) but lower concentrations of 3-nitrotoluene (10 ppm), complete degradation was observed to occur within 14 days. Other evidence supports complete aerobic degradation of 10 mg/L 3-nitrotoluene within 2 weeks when incubated in adapted aerobic composite river sediment and sewage sludges(3). When nitrotoluene-adapted activated sludges were used as an inoculum, however, 3-nitrotoluene (200 mg/L) was almost completely

degraded (i.e. 98% removal) within 5 days when incubated at 20 deg C(4). Using a mixed culture isolated from a contaminated soil (near an ammunition plant), 3-nitrotoluene (at initial concentrations of 5 and 12 mg/L) degraded completely in 4 days in aerobic batch and continuous reactor tests(5).

#### **Bioaccumulative potential**

The BCF for 3-nitrotoluene in fish (*Poecilia reticulata*) was been experimentally determined to be 16(1). The BCF in carp (*Cyprinus carpio*) ranged from 0.47 to 12 at test concentrations of 2.5-25 ppb 3-nitrotoluene over a 6-week exposure period(2). According to a classification scheme(2), these BCF values suggest the potential for bioconcentration in aquatic organisms is low(SRC).

#### **Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc of 3-nitrotoluene can be estimated to be 363(SRC). According to a classification scheme(2), this estimated Koc value suggests that 3-nitrotoluene is expected to have moderate mobility in soil. Field monitoring at a munition factory site in Melbourne Australia found that 3-nitrotoluene migrated large distances in the subsurface soils(3); 3-nitrotoluene is reported to have low soil Kd sorption coefficients in a variety of soils types(3) indicating it will leach.

#### **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: UN1664 (For reference only, please check.)

IMDG: UN1664 (For reference only, please check.)

IATA: UN1664 (For reference only, please check.)

**UN Proper Shipping Name**

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

IMDG: NITROTOLUENES, LIQUID (For reference only, please check.)

IATA: NITROTOLUENES, LIQUID (For reference only, please check.)

**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.)

**Packing group, if applicable**

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

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

IATA: II (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?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=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

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.

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