

## Chemical Safety Data Sheet MSDS / SDS

## 2,5-dinitrotoluene 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: 2,5-dinitrotoluene  
CAS: 619-15-8

**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**

Acute toxicity - Category 3, Oral  
Acute toxicity - Category 3, Dermal

Acute toxicity - Category 3, Inhalation  
Germ cell mutagenicity, Category 2  
Carcinogenicity, Category 1B  
Specific target organ toxicity - repeated exposure, Category 2  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2  
Reproductive toxicity, 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  
H341 Suspected of causing genetic defects  
H350 May cause cancer  
H373 May cause damage to organs through prolonged or repeated exposure  
H411 Toxic to aquatic life with long lasting effects

### 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.  
P203 Obtain, read and follow all safety instructions before use.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P273 Avoid release to the environment.

### 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.  
P318 IF exposed or concerned, get medical advice.  
P319 Get medical help if you feel unwell.  
P391 Collect spillage.

#### **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:	2,5-dinitrotoluene
Common names and synonyms:	2,5-dinitrotoluene
CAS number:	619-15-8
EC number:	210-581-4
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. Refer for medical attention .

#### **Following eye contact**

Rinse with plenty of water for several minutes (remove contact lenses if easily possible).

#### **Following ingestion**

Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention .

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

no data available

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

In case of ingestion, induction of emesis is not recommended because of the potential for central nervous system depression. Gastric lavage and administration of activated charcoal may be considered soon after ingestion, provided airways are protected.  
Dinitrotoluene

### **SECTION 5: Firefighting measures**

#### **Suitable extinguishing media**

Water, dry chemical, or carbon dioxide from protected location.

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

Combustible. Gives off irritating or toxic fumes (or gases) in a fire. Finely dispersed particles form explosive mixtures in air.

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

Use water spray, powder, foam, carbon dioxide. 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**

Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

### **Environmental precautions**

Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

### **Methods and materials for containment and cleaning up**

1) remove all ignition sources. 2) ventilate area of spill. 3) for small quantities, sweep onto paper or other suitable material & burn in suitable combustion chamber which allows burning in unconfined condition & is equipped with appropriate effluent gas cleaning device. large quantities may be reclaimed...if...not practical, dissolve in fuel oil & atomize in suitable combustion chamber equipped with appropriate effluent gas cleaning device. dinitrotoluene

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

### **Precautions for safe handling**

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. 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, food and feedstuffs and incompatible materials. See Chemical Dangers. Well closed. Keep in a well-ventilated room. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. Normally stored as a molten liquid. Separate from strong oxidizers & reducing agents. Hot water coils should not exceed 194 deg F (90 deg C). Dinitrotoluenes

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

### **Control parameters**

### **Occupational Exposure limit values**

Component	2,5-dinitrotoluene			
CAS No.	619-15-8			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Finland	?	0,2	?	?
	Remarks			

### 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 clothing. Protective gloves.

#### Respiratory protection

Use local exhaust or breathing protection.

#### Thermal hazards

no data available

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

Physical state: OtherSolid  
 Colour: Needles from alcohol  
 Odour: no data available

Melting point/freezing point:	52.5°C
Boiling point or initial boiling point and boiling range:	313.6°C at 760 mmHg
Flammability:	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	157.1°C
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	0.0055393 Pa.s at 323.48 K (est)
Solubility:	Soluble in ethanol; very soluble in carbon disulfide
Partition coefficient n-octanol/water:	log Kow = 2.18 (est)
Vapour pressure:	0.0005 mm Hg at 25 deg C /extrapolated/
Density and/or relative density:	1.407 g/cm <sup>3</sup>
Relative vapour density:	(air = 1): 6.3
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### **Reactivity**

NIOSH considers dinitrotoluene to be a potential occupational carcinogen. [50 mg/cu m] Dinitrotoluene  
May explode on heating. Decomposes on heating. This produces toxic fumes including nitrogen oxides even in the absence of air.  
Reacts with strong oxidants. Reacts with reducing agents, strong bases, amines, zinc and tin.

### **Chemical stability**

no data available

### **Possibility of hazardous reactions**

Combustible material. /3,4-Dinitrotoluene/Dust explosion possible if in powder or granular form, mixed with air.

### **Conditions to avoid**

no data available

### **Incompatible materials**

no data available

### **Hazardous decomposition products**

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

## **SECTION 11: Toxicological information**

### **Acute toxicity**

Oral: LD50 Rat oral 707 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**

A3; Confirmed animal carcinogen with unknown relevance to humans. Dinitrotoluene

#### **Reproductive toxicity**

no data available

#### **STOT-single exposure**

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the blood. This may result in the formation of methaemoglobin. The effects may be delayed. Medical observation is indicated.

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

The substance may have effects on the blood. This may result in the formation of methaemoglobin. This substance is possibly carcinogenic to humans.

#### **Aspiration hazard**

A harmful concentration of airborne particles can be reached quickly when dispersed.

## **SECTION 12: Ecological information**

#### **Toxicity**

Toxicity to fish: LC50; Species: Pimephales promelas (Fathead Minnow) juvenile; Conditions: freshwater, static, 20 deg C, pH 7.2-8.6, hardness 26 mg/L CaCO<sub>3</sub>, alkalinity 45 mg/L CaCO<sub>3</sub>, dissolved oxygen 6.8 (4.7-9.2) mg/L; Concentration: 1300 ug/L for 96 hr /formulation

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) 1st instar larva; Conditions: freshwater, static, 20 deg C, pH 7.2-8.6, hardness 26 mg/L CaCO<sub>3</sub>, alkalinity 45 mg/L CaCO<sub>3</sub>, dissolved oxygen 8.8 mg/L; Concentration: 3400 ug/L for 48 hr; Effect: intoxication, immobilization /formulation

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### **Persistence and degradability**

AEROBIC: 2,5-Dinitrotoluene was not mineralized in water from a pond and from Waconda Bay; however, 2,5-dinitrotoluene was co-metabolized when 500 ppm of yeast extract were added to the water from these two sources(1). The rate of degradation with added yeast extract in Searsville Pond water was  $2.3 \times 10^{-10}$  mL/cell-hour, and in Waconda Bay water was  $12 \times 10^{-10}$  mL/cell-hour(1). Analogous compound 2,4-dinitrotoluene was used as the sole carbon source and mineralized in natural surface water that had been acclimated to 120 ppm 2,4-dinitrotoluene; after a 2-3 day lag period, >90% of 10 ppm 2,4-dinitrotoluene was transformed in aerated water after 6 days of incubation(2). Mixed dinitrotoluene isomers, present at 100 mg/L, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test that suggests the compound is not readily biodegradable(3).

### **Bioaccumulative potential**

An estimated BCF of 13 was calculated for 2,5-dinitrotoluene(SRC), using an estimated log Kow of 2.18(1) and a regression-derived equation(1). The BCF for dinitrotoluene (mixed isomers) has been measured to be low (BCF values of 0.6 to 21.2) in carp (Carprinus carpio)(2). According to a classification scheme(2), these BCF values suggest the potential for bioconcentration in aquatic organisms is low.

### **Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc for 2,5-dinitrotoluene can be estimated to be 575(SRC). According to a classification scheme(2), this estimated Koc value suggests that 2,5-dinitrotoluene is expected to have medium mobility in soil.

### **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: UN3454 (For reference only, please check.)  
IMDG: UN3454 (For reference only, please check.)  
IATA: UN3454 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: DINITROTOLUENES, SOLID (For reference only, please check.)  
IMDG: DINITROTOLUENES, SOLID (For reference only, please check.)  
IATA: DINITROTOLUENES, SOLID (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: Yes  
IMDG: Yes

IATA: Yes

**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**

Not Listed.

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

Not Listed.

**(PICCS)**

Not Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Not Listed.

## Korea Existing Chemicals List (KECL)

Not 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](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**

Combustion in a confined space may turn into detonation. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Do NOT take working clothes home. See ICSCs 0726, 0727, 0728 and 0729.

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