

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 26, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2,5-Dinitrotoluene

1.2 Other means of identification

Product number CCEM500867
Other names Toluene,2,5-dinitro; 2,5-Dinitrotoluol; 2,5-DNT

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

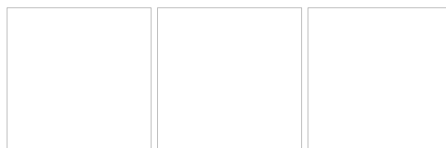
SECTION 2: Hazard identification

2.1 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

2.2 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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,5-Dinitrotoluene	2,5-dinitrotoluene	619-15-8	210-581-4	100%

SECTION 4: First-aid measures

4.1 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 .

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 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: Fire-fighting measures

5.1 Suitable extinguishing media

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

5.2 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.

5.3 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

6.1 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.

6.2 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.

to local regulations.

6.3 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

7.1 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.

7.2 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

8.1 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 ³	ppm	mg/m ³
Finland		0,2		
	Remarks			

Biological limit values

no data available

8.2 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.

8.3 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 ³
Relative vapour density	(air = 1): 6.3
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 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.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 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

12.1 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 CaCO₃, alkalinity 45 mg/L CaCO₃, 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 CaCO₃, alkalinity 45 mg/L CaCO₃, 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

12.2 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 2.3X10⁻¹⁰ mL/cell-hour, and in Waconda Bay water was 12X10⁻¹⁰ 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).

12.3 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.

12.4 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.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN3454 (For reference only, please check.)	IMDG: UN3454 (For reference only, please check.)	IATA: UN3454 (For reference only, please check.)
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14.2 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.)
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14.3 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.)
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14.4 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.)

14.5 Environmental hazards

ADR/RID: Yes	IMDG: Yes	IATA: Yes
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14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
2,5-dinitrotoluene	2,5-dinitrotoluene	619-15-8	210-581-4
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.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date April 26, 2024

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

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.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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 damage resulting from handling or from contact with the above product.