

Material Safety Data Sheet

Trinitrotoluene (TNT) MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trinitrotoluene (TNT)
CAS#: 118-96-7
Synonym: Benzene, 2-methyl-1,3,5-trinitro-; Entsufof; 1-Methyl-2,4,6-trinitrobenzene; NCI-C56155, alpha-TNT; 2,4,6-trinitrotoluen; TNT-tolite; Tolit; Tolite; Trilit
Chemical Formula: C₇H₅N₃O₆

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trinitrotoluene (TNT)	118-96-7	Not available

Section 3: Hazards Identification

TNT is a Division 1.1 explosive, and detonation may cause severe physical injury, including death. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, and ordinances.

Inhalation of explosives powders may cause nervous system irregularities including headaches and dizziness. Nitrogen oxides generated during use are skin, eye, and respiratory tract irritants.

The prevention of accidents in the use of explosives is a result of careful planning and observance of the best known practices. The explosives user must remember that he is dealing with a powerful force and that various devices and methods have been developed to assist him in directing this force. He should realize that this force, if misdirected, may either kill or injure both him and his fellow workers.

All explosives are dangerous and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances. If you have any questions or doubts as to how to use any explosive product, DO NOT USE IT before consulting with your supervisor, or the manufacturer, if you do not have a supervisor. If your supervisor has any questions or doubts, he should consult the manufacturer before use.

Carcinogenicity: None of the components of TNT are listed as a carcinogen by NTP, IARC, or OSHA.

Section 4: First Aid Measures

Eye Contact: Flush eyes with water.

Skin Contact: Wash skin with soap and water.

Inhalation: If detonation fumes are inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing is difficult, give oxygen and call a physician.

Ingestion: Induce vomiting immediately by giving two glasses of water and sticking finger down throat.

Injury from detonation: Seek prompt medical attention.

Section 5: Fire and Explosion Data

Flammability of the Product: Explosive.

Auto-Ignition Temperature: Explodes at 240°C

Flash Points: 290°C

Flammable Limits: LOWER: 70 g/m³

Products of Combustion: Oxides of nitrogen and carbon.

Fire Fighting Media and Instructions: Spray water, CO₂, soil, sand

Special Remarks on Fire Hazards: ALL EXPLOSIVES: DO NOT FIGHT EXPLOSIVES FIRES. Try to keep fire from reaching explosives. Isolate area. Guard against intruders.

Special Remarks on Explosion Hazards: Division 1.1 Explosives: Evacuate the area for 5000 feet (1 mile). Consult the 2000 Emergency Response Guidebook, Guide 112 for further details.

Section 6: Accidental Release Measures

Spill/leak response: Review fire and explosion hazards before proceeding with clean up. Remove all ignition

Section 7: Handling and Storage

Store in a cool room, equipped with ventilation system, away from heat, flames and incompatible substances. Avoid heat, sudden jolts and bumps, electrical discharges. If possible, keep the product moist. Comply with the rules and regulations for the transportation and storage of explosives. Package - polypropylene bags, with polyethylene liners (max 40 kg)

Section 8: Exposure Controls/Personal Protection

Ventilation: General ventilation with local exhaust in operation area.

Respiratory: Wear fitted NIOSH approved respirator, avoid dusting by keeping wet when possible

Eye: Chemical goggles.

Gloves: Cotton or leather gloves

Other: Flame proof coveralls and conductive boots.

Section 9: Physical and Chemical Properties

Physical Description (physical state at room temperature) yellow, odorless solid

Molecular weight (g/mol) 227,13

Water solubility (% at 20 °C) 0,013

Octanol-water partition coefficient (K_{OW}) 1.6

Boiling point (°C) 240 (Explodes)

Melting point (°C) 80.8

Vapor pressure at 20 °C (mm Hg) 1.99 x10⁻⁴

Density (g/cm³ at 20 °C) 1.654

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Special Remarks on Reactivity: Oxidized, reacts with alkalis, reacts with varnishes and lacquers containing amine and amide groups

Polymerization: Polymerization will not occur

Section 11: Toxicological Information

The product is harmful if inhaled, swallowed, in contact with skin and mucous membranes. With prolonged exposure may develop dermatitis, toxic hepatitis, nephritis, peripheral neuropathy, anemia, cataracts.

Acute toxicity: LD 50 (oral, mouse) 660 mg/kg; LD 50 (oral, rat) 795 mg/kg.

Minimal toxicity: LDLo = 28 g/kg (oral, human).

Section 12: Ecological Information

Environmental fate: Yes, azo- and azoxy compounds

Acute toxicity (Fishes): LC50=0,46 mg/l (Pimephales promelas, 96 hours). LC50=2,7 mg/l (Lepomis macrochrus, 96 hours).

Acute toxicity (Daphnia magna): LC50>4,4 mg/l (48 hours)

Section 13: Disposal Considerations

Waste disposal: Dispose of in compliance with federal regulations under the authority of the Resource Conservation and Recovery Act (40 CFR Parts 260-271).

Section 14: Transport Information

DOT Classification: EXPLOSIVE 1.1D

Identification: : TRINITROTOLUENE FLAKED (TNT) : UN0209 (1.1D)

Special Provisions for Transport: Not available.

Section 15: Other Information

References: Not available.

Other Special Considerations: Not available.

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Futher Information: The information contained in this Material Safety Data Sheet is based upon available data and believed to be correct; however, as such has been obtained from various sources, including the manufacturer and independent laboratories, it is given without warranty or representation that it is complete, accurate, and can be relied upon. *Research and Production Enterprise "Zarya", Ltd.* has not attempted to conceal in any manner the deleterious aspects of the product listed herein, but makes no warranty as to such. Further, *Research and Production Enterprise "Zarya", Ltd.* cannot anticipate nor control the many situations in which the product or this information may be used; there is no guarantee that the health and safety precautions suggested will be proper under all conditions. It is the sole responsibility of each user of the product to determine and comply with the requirements of all applicable laws and regulations regarding its use. This information is given solely for the purposes of safety to persons and property. Any other use of this information is expressly prohibited.