

# 3,4-DINITROTOLUENE

DNU

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> 3,4-DNT Toluene, 3,4-dinitro-	Solid or heated liquid    Yellow to Red    Slight  Liquid solidifies. Solid and liquid sink in water.
<p>keep people away. <b>AVOID CONTACT WITH LIQUID AND SOLID.</b>                      Avoid inhalation.                      Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves).                      Shut off ignition sources and call fire department.                      Notify local health and pollution control agencies.                      Protect water intakes.</p>	
<b>Fire</b>	<p>COMBUSTIBLE.                      POISONOUS GASES MAY BE PRODUCED IN FIRE.                      Containers may explode in fire.                      Evacuate surrounding area.                      Wear goggles and self-contained breathing apparatus.                      Combat fire from safe distance or protected location.                      Cool exposed containers with water.                      Extinguish with water spray.</p>
<b>Exposure</b>	<p>CALL FOR MEDICAL AID.                       LIQUID OR SOLID                      POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED.                      Will burn skin and eyes.                      Remove contaminated clothing and shoes.                      Flush affected areas with plenty of water.                      IF IN EYES, hold eyelids open and flush with plenty of water.                      IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.                      IF SWALLOWED and victim is UNCONSCIOUS, OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>
<b>Water Pollution</b>	<p>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.                      May be dangerous if it enters water intakes.                      Notify local health and wildlife officials.                      Notify operators of nearby water intakes.</p>

<p><b>1. CORRECTIVE RESPONSE ACTIONS</b>                      Dilute and disperse                      Stop discharge                      Contain                      Collection Systems: Pump; Dredge                      Do not burn</p>	<p><b>2. CHEMICAL DESIGNATIONS</b>                      2.1 <b>CG Compatibility Group:</b> Currently not available; Aromatic Hydrocarbon                      2.2 <b>Formula:</b> (NO<sub>2</sub>)<sub>2</sub>C<sub>6</sub>H<sub>4</sub>CH<sub>3</sub>                      2.3 <b>IMO/UN Designation:</b> 6.1/2038                      2.4 <b>DOT ID No.:</b> 2038                      2.5 <b>CAS Registry No.:</b> 610-39-9                      2.6 <b>NAERG Guide No.:</b> 152                      2.7 <b>Standard Industrial Trade Classification:</b> 51140</p>
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 <b>Personal Protective Equipment:</b> Safety glasses with side shield or safety goggles and plastic face shield. Self-contained breathing apparatus or air line mask. Butyl rubber gloves, boots and protective clothing.</p> <p>3.2 <b>Symptoms Following Exposure:</b> INHALATION, INGESTION OR SKIN ABSORPTION: Headache, weakness, nausea or dizziness, cyanosis, drowsiness, shortness of breath and collapse. EYES AND SKIN: Can burn eyes and skin.</p> <p>3.3 <b>Treatment of Exposure:</b> Call a doctor. INHALATION: Remove from exposure. If cyanotic, oxygen can be administered. EYES: Flush with copious amounts of water. SKIN: Remove all contaminated clothing. Wash with lukewarm water and soap. INGESTION: Induce vomiting. Administer gastric lavage.</p> <p>3.4 <b>TLV-TWA:</b> Not listed.                      3.5 <b>TLV-STEL:</b> Not listed.                      3.6 <b>TLV-Ceiling:</b> Not listed.                      3.7 <b>Toxicity by Ingestion:</b> Grade 2; LD<sub>50</sub> = .5-5 g/kg                      3.8 <b>Toxicity by Inhalation:</b> Currently not available.                      3.9 <b>Chronic Toxicity:</b> Caused methemoglobinemia and anemia. Damaged spleen and liver. Brain damage was observed as was testicular atrophy.                      3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Not pertinent                      3.11 <b>Liquid or Solid Characteristics:</b> Currently not available                      3.12 <b>Odor Threshold:</b> Currently not available                      3.13 <b>IDLH Value:</b> Not listed.                      3.14 <b>OSHA PEL-TWA:</b> Not listed.                      3.15 <b>OSHA PEL-STEL:</b> Not listed.                      3.16 <b>OSHA PEL-Ceiling:</b> Not listed.                      3.17 <b>EPA AEGL:</b> Not listed</p>	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** (est.) 404°F C.C.
- 4.2 **Flammable Limits in Air:** Currently not available
- 4.3 **Fire Extinguishing Agents:** Water, CO<sub>2</sub>, dry chemical
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Emits toxic fumes of oxides of nitrogen.
- 4.6 **Behavior in Fire:** May explode when exposed to heat or flame.
- 4.7 **Auto Ignition Temperature:** Currently not available
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Currently not available
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 40.5 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 12.0 (calc.)
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

## 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
- 5.2 **Reactivity with Common Materials:** No reaction
- 5.3 **Stability During Transport:** Solid
- 5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

## 6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** 10 ppm/96 hr/fin fish/TL<sub>m</sub>
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** Currently not available
- 6.5 **GESAMP Hazard Profile:** Not listed

## 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 7.5 **IMO Pollution Category:** A
- 7.6 **Ship Type:** 2
- 7.7 **Barge Hull Type:** Currently not available

## 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison
- 8.2 **49 CFR Class:** 6.1
- 8.3 **49 CFR Package Group:** II
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** Not listed.
- 8.7 **EPA Pollution Category:** Not listed.
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Not listed

## 9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
- 9.2 **Molecular Weight:** 182.13
- 9.3 **Boiling Point at 1 atm:** Not pertinent-decomposes
- 9.4 **Freezing Point:** 140-141.8°F = 60-61°C = 333.2-334.2°K
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 1.2594 at 111°C
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 6.28
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
- 9.12 **Latent Heat of Vaporization:** Currently not available
- 9.13 **Heat of Combustion:** -8075 Btu/lb = -4486 cal/g = -187.7 X 10<sup>5</sup> J/kg
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Not pertinent
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** Currently not available

## NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	N O T  P E R T I N E N T		N O T  P E R T I N E N T		N O T  P E R T I N E N T		N O T  P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I N S O L U B L E		N O T  P E R T I N E N T		N O T  P E R T I N E N T		C U R R E N T L Y  N O T  A V A I L A B L E