

# TETRANITROMETHANE

TNM

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> NCI-C55947 Tetan TNM	Liquid	Colorless or yellow	Pungent
Sinks in water.			
<b>Keep people away. Avoid contact with vapor or liquid.</b> <b>Evacuate</b> <b>Wear self-contained breathing apparatus and protective clothing and gloves.</b> <b>Shut off ignition sources and call fire department.</b> <b>Notify local health and pollution control authorities.</b>			
<b>Fire</b>	COMBUSTIBLE. May explode when heated. Emits toxic fumes under fire conditions. Wear self-contained breathing apparatus and protective clothing. Extinguish with water spray, dry chemical, CO <sub>2</sub> , or foam.		
<b>Exposure</b>	CALL FOR MEDICAL AID.  VAPOR May be fatal if inhaled or absorbed through the skin. Irritating to the eyes, nose, throat, and lungs. Remove to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.  LIQUID May be fatal if ingested or absorbed through the skin. Effects may be delayed. Causes eye and skin irritation. IF IN EYES: hold eyelids open, flush with running water for at least 15 minutes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF SWALLOWED: DO NOT INDUCE VOMITING. Keep victim quiet and maintain normal body temperature.		
<b>Water Pollution</b>	Effects of low concentrations on aquatic life are not known. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

<b>1. CORRECTIVE RESPONSE ACTIONS</b> Stop discharge Collection Systems: Pump; Dredge Do not burn	<b>2. CHEMICAL DESIGNATIONS</b> 2.1 CG Compatibility Group: Not listed 2.2 Formula: C(NO <sub>2</sub> ) <sub>4</sub> 2.3 IMO/UN Designation: 5.1/1510 2.4 DOT ID No.: 1510 2.5 CAS Registry No.: 509-14-8 2.6 NAERG Guide No.: 143 2.7 Standard Industry Trade Classification: 51140
<b>3. HEALTH HAZARDS</b> 3.1 <b>Personal Protective Equipment:</b> Approved respirator, safety goggles, chemical resistant gloves, other protective clothing. 3.2 <b>Symptoms Following Exposure:</b> Irritating to mucous membranes, upper respiratory tract, nose and eyes. Absorption into the body leads to the formation of methemoglobin which may lead to cyanosis. Onset may be delayed 2 to 4 hours or longer. Central nervous system depressant. 3.3 <b>Treatment of Exposure:</b> EYES: Hold eyelids open and flush with running water for at least 15 minutes. SKIN: Remove contaminated clothing and shoes. Flush affected areas with running water for at least 15 minutes. Wash contaminated clothing before reuse. INGESTION: Call a physician. 3.4 <b>TLV-TWA:</b> 0.005 ppm 3.5 <b>TLV-STEL:</b> Not listed. 3.6 <b>TLV-Ceiling:</b> Not listed. 3.7 <b>Toxicity by Ingestion:</b> Grade 3; LD <sub>50</sub> = 130 mg/kg (rat) 3.8 <b>Toxicity by Inhalation:</b> Currently not available. 3.9 <b>Chronic Toxicity:</b> May cause cyanosis due to formation of methemoglobin. Damage to heart and eyes. 3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Vapors are moderately irritating such that personnel will not usually tolerate moderate or high concentrations. 3.11 <b>Liquid or Solid Characteristics:</b> Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of skin. 3.12 <b>Odor Threshold:</b> Currently not available 3.13 <b>IDLH Value:</b> 4 ppm 3.14 <b>OSHA PEL-TWA:</b> 1 ppm 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	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** >230°F C.C.
- 4.2 **Flammable Limits in Air:** Currently not available
- 4.3 **Fire Extinguishing Agents:** Water spray, CO<sub>2</sub>, dry chemical, foam.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Toxic fumes of NO<sub>x</sub>.
- 4.6 **Behavior in Fire:** May be explosive.
- 4.7 **Auto Ignition Temperature:** Currently not available
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 4.8 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 5.0 (calc.)
- 4.14 **Maximum Oxygen Concentration for Combustion (MOCC):** Not listed

## 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity in Water:** No reaction
- 5.2 **Reactivity with Common Materials:** Incompatible with finely divided metals, iron and iron salts, copper, brass, zinc, or rubber.
- 5.3 **Stability During Transport:** Stable
- 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:** Currently not available
- 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:** 98%
- 7.2 **Storage Temperature:** Refrigerate
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** None
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** Currently not available

## 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Oxidizer
- 8.2 **49 CFR Class:** 5.1
- 8.3 **49 CFR Package Group:** I
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**
- | Category                  | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 4              |
| Flammability (Red).....   | 0              |
| Instability (Yellow)..... | 4              |
- 8.6 **EPA Reportable Quantity:** 10 pounds 10 pounds
- 8.7 **EPA Pollution Category:** A
- 8.8 **RCRA Waste Number:** P112
- 8.9 **EPA FWPCA List:** Not listed

## 9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 196.03
- 9.3 **Boiling Point at 1 atm:** 259°F = 126°C = 399°K
- 9.4 **Freezing Point:** 56°F = 13.5°C = 286.7°K
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 1.6380 at 20°C
- 9.8 **Liquid Surface Tension:** Currently not available
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 6.76
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** 188 Btu/lb = 104 cal/g = 4.4 X 10<sup>5</sup> J/kg
- 9.13 **Heat of Combustion:** Currently not available
- 9.14 **Heat of Decomposition:** Currently not available
- 9.15 **Heat of Solution:** Currently not available
- 9.16 **Heat of Polymerization:** Currently not available
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** 0.5 psia

## 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
68	102.260		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E

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 I L E	80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250	0.226 0.339 0.487 0.676 0.912 1.202 1.551 1.967 2.457 3.027 3.686 4.441 5.299 6.269 7.358 8.575 9.929 11.429		C U R R E N T L Y  N O T  A V A I L A B L E	25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.165 0.170 0.175 0.180 0.184 0.189 0.194 0.199 0.204 0.208 0.213 0.218 0.223 0.228 0.233 0.237 0.242 0.247 0.252 0.257 0.261 0.266 0.271 0.276