

PROPANEDINITRILE

PPD

CAUTIONARY RESPONSE INFORMATION

Common Synonyms		Solid, crystals or powder	Colorless, white
Cyanoacetoneitrile Dicyanomethane Malonic dinitrile Malononitrile Methylene cyanide		Sinks and mixes with water. Melting point is 90-93°F.	
<p>KEEP PEOPLE AWAY. AVOID CONTACT WITH SOLID AND DUST. Wear self-contained positive pressure breathing apparatus and full protective clothing. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>			
Fire	COMBUSTIBLE. POISONOUS GASES ARE PRODUCED IN FIRE OR WHEN HEATED. Wear self-contained positive pressure breathing apparatus and full protective clothing. Extinguish small fires: dry chemicals, CO ₂ , water spray or foam; large fires: water spray, fog or foam. Combat fires from safe distance or protected location. Move container from fire area if you can do it without risk.		
Exposure	CALL FOR MEDICAL AID. DUST POISONOUS IF INHALED. Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. SOLID POISONOUS IF SWALLOWED OR ABSORBED THROUGH SKIN. Irritating to eyes. IF IN EYES OR ON SKIN, flush with running water for at least 15 min., hold eyelids open if necessary. Remove and isolate contaminated clothing and shoes at the site.		
Water Pollution	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.		

1. CORRECTIVE RESPONSE ACTIONS	2. CHEMICAL DESIGNATIONS
Stop discharge Collection Systems: Pump Do not burn	2.1 CG Compatibility Group: Not listed. 2.2 Formula: CH ₂ (CN) ₂ 2.3 IMO/UN Designation: 6.1/2647 2.4 DOT ID No.: 2647 2.5 CAS Registry No.: 109-77-3 2.6 NAERG Guide No.: 153 2.7 Standard Industrial Trade Classification: 51484
3. HEALTH HAZARDS	
3.1 Personal Protective Equipment: Wear self-contained positive pressure breathing apparatus and full protective clothing. 3.2 Symptoms Following Exposure: Poisonous if inhaled, swallowed or absorbed through the skin; an eye irritant. 3.3 Treatment of Exposure: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Immediately flush with running water for at least 15 min., hold eyelids open if necessary. Remove and isolate contaminated clothing and shoes at the site. 3.4 TLV-TWA: Not listed. 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 4; LD ₅₀ = 19 mg/kg (mouse) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Currently not available 3.10 Vapor (Gas) Irritant Characteristics: Currently not available 3.11 Liquid or Solid Characteristics: Currently not available 3.12 Odor Threshold: Currently not available 3.13 IDLH Value: Not listed. 3.14 OSHA PEL-TWA: Not listed. 3.15 OSHA PEL-STEL: Not listed. 3.16 OSHA PEL-Ceiling: Not listed. 3.17 EPA AEGL: Not listed	

4. FIRE HAZARDS

- 4.1 **Flash Point:** 266°F.O.C; 234°F.C.C
- 4.2 **Flammable Limits in Air:** Currently not available
- 4.3 **Fire Extinguishing Agents:** Small fires: dry chemical, CO₂, water spray or foam; large fires: water spray, fog or foam.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** They may contain toxic NO_x, cyanide and cyanogen fumes.
- 4.6 **Behavior in Fire:** It burns to produce toxic and irritating gases.
- 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:** 26.2 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 6.0 (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:** Currently not available
- 5.3 **Stability During Transport:** Stable. Keep as cool as reasonably practical. May polymerize violently after prolonged heating at 130°C.
- 5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
- 5.5 **Polymerization:** Violent polymerization may occur if held at 130°C. for an extended period of time.
- 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
1.6 mg/l/96 hr/rainbow trout/LC₅₀/fresh water
1.3 to 1.6 mg/l/96 hr/kill fish/LC₅₀/salt water
- 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:** 99%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Not pertinent
- 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:** 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:** 1000 pounds
- 8.7 **EPA Pollution Category:** C
- 8.8 **RCRA Waste Number:** U149
- 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:** 66.06
- 9.3 **Boiling Point at 1 atm:** 428°F. = 220°C. = 493°K.
- 9.4 **Freezing Point:** 90-93°F. = 32-34°C. = 305-307°K.
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 1.1910 at 20°C.
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 2.3 (est.)
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** Currently not available
- 9.13 **Heat of Combustion:** Currently not available
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Currently not available
- 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
93	65.500		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
77	13.000		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