**PROPANEDINITRILE**

### CAUTIONARY RESPONSE INFORMATION

#### Fire

**Combustible:** POISONOUS GASES ARE PRODUCED IN FIRE OR WHEN HEATED.

**Extinguishment:**
- Small fires: dry chemical, CO₂, water spray or foam;
- Large fires: water spray, fog or foam.
- Combat fires from safe distance or protected location.

**Special Hazards of Combustion Products:** They may contain toxic NOx, cyanide and cyanogen fumes.

**Behavior in Fire:** It burns to produce toxic and irritating gases.

**Auto Ignition Temperature:** Currently not available.

**Explosive Material:** Currently not available.

**Burning Rate:** Currently not available.

**Additive Flame Temperature:** Currently not available.

**Combustion Molar Ratio (Reactant to Product):** 6.0 (calc).

**12 Flame Temperature:** Currently not available.

**Combustion Molar Ratio (Reactant to Product):** Not pertinent.

**5. CHEMICAL REACTIVITY**

**Reactivity with Water:** Not pertinent.

**Reactivity with Common Materials:** Currently not available.

**Stability During Transport:** Stable. Keep as cool as reasonably practical. May polymerize violently after prolonged heating at 130°C.

**Neutralizing Agents for Acids and Caustics:** Not pertinent.

**5.6 Inhibitor of Polymerization:** Not pertinent.

#### 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 the 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.** Notify local health and wildlife officials. Notify operators of nearby water intakes.

#### Water Pollution

**Collection Systems:** Sump and drain systems.

**Notify Local Health and Pollution Control Agencies.**

#### 1. CORRECTIVE RESPONSE ACTIONS

- Stop discharge.
- Do not burn.

#### 2. CHEMICAL DESIGNATIONS

- **1.1 Flash Point:** Not listed.
- **1.2 Formula:** CH₂(CN)₂.
- **1.3 N.O. Designation:** 6.1/2647.
- **1.4 DOT No.:** 2647.
- **1.6 N.A.R.E. Guide No.:** 153.
- **1.7 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; LD₅₀ = 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 AEL:** Not listed.

#### 4. FIRE HAZARDS

**4.1 Flash Point:**
- Water: 286°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 NOx, 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 Additive Flame Temperature:** Currently not available.

**4.11 Stoichiometric Air to Fuel Ratio:** 26.2.

**4.12 Flame Temperature:** Currently not available.

**4.13 Combustion Molar Ratio (Reactant to Product):** Not pertinent.

**6. WATER POLLUTION**

**6.1 Aquatic Toxicity:**
- Rainbow trout: LC₅₀ = 1.6 mg/l; 96 hr; freshwater.
- HNL: LC₅₀ = 1.6 mg/l, 96 hr; freshwater.

**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.

**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.

#### 8. HAZARD CLASSIFICATIONS

- **8.1 40 CFR Category:** Poison.
- **8.2 40 CFR Class:** 6.1
- **8.3 40 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 PWP/CA:** 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:** 429°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:** 1.910 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:** 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**

**9.1 Chemical Names and Synonyms:**
- Cyanacetonitrile
- Malononitrile
- Dieyanomethane
- Cyanoacetonitrile

**KEEP PEOPLE AWAY: AVOID CONTACT WITH SOLID AND DUST.**

**Protect water intakes.**
### 9.20 SATURATED LIQUID DENSITY

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### 9.21 LIQUID HEAT CAPACITY

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### 9.22 LIQUID THERMAL CONDUCTIVITY

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### 9.23 LIQUID VISCOSITY

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### 9.24 SOLUBILITY IN WATER

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### 9.25 SATURATED VAPOR PRESSURE

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### 9.26 SATURATED VAPOR DENSITY

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### 9.27 IDEAL GAS HEAT CAPACITY

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