

ADIPONITRILE

ADN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 1,4-Dicyanobutane Hexanedinitrile		Liquid Colorless to light yellow Odorless Floats on water. Freezing point is 36°F.
Stop discharge if possible. Call fire department. Avoid contact with liquid. Isolate and remove discharged material. Notify local health and pollution control agencies. Protect water intakes.		
Fire	Combustible. POISONOUS GASES MAY BE PRODUCED IN FIRE. Vapor may explode if ignited in an enclosed area. Wear chemical protective suit with self-contained breathing apparatus. Extinguish with water, dry chemicals, foam or carbon dioxide. Cool exposed containers with water.	
Exposure	CALL FOR MEDICAL AID. LIQUID OR SOLID Irritating to skin and eyes. If swallowed, will cause nausea or vomiting. 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.	
Water Pollution	Dangerous to aquatic life in high concentrations. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.	

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Contain
 Collection Systems: Skim
 Clean shore line
 Salvage waterfowl
 Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 37; Nitrite
 2.2 Formula: NC(CH₂)₄CN
 2.3 IMO/UN Designation: Not listed
 2.4 DOT ID No.: 2205
 2.5 CAS Registry No.: 111-69-3
 2.6 NAERG Guide No.: 153
 2.7 Standard Industrial Trade Classification: 51484

3. HEALTH HAZARDS

3.1 **Personal Protective Equipment:** Rubber gloves and clothing giving full body and face protection to avoid contact with skin. Air or oxygen mask.
 3.2 **Symptoms Following Exposure:** Ingestion of a few ml. may cause weakness, mental confusion, vomiting, rapid respiration, and tachycardia and convulsions. Headache and convulsions can result from exposure to vapor.
 3.3 **Treatment of Exposure:** Symptomatic treatment. Call physician. Thiosulfate should be considered. Administer vapor of amyl nitrite if patient is unconscious.
 3.4 **TLV-TWA:** 2 ppm (skin).
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** Not listed.
 3.7 **Toxicity by Ingestion:** oral LD50 250mg/kg (rat)
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 3.10 **Vapor (Gas) Irritant Characteristics:** If present in high concentrations, vapors cause a slight smarting of the eyes or respiratory system and may also cause more severe symptoms such as headache and convulsions.
 3.11 **Liquid or Solid Characteristics:** If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin. If absorbed by skin may cause more severe symptoms such as headache and convulsions.
 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:** 325°F C.C.
 4.2 **Flammable Limits in Air:** LFL = 1.0% at 200°C
 4.3 **Fire Extinguishing Agents:** Water spray, dry chemical, foam, or carbon dioxide
 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
 4.5 **Special Hazards of Combustion Products:** Toxic gases are generated in fires.
 4.6 **Behavior in Fire:** Not pertinent
 4.7 **Auto Ignition Temperature:** 550C (1022 F)
 4.8 **Electrical Hazards:** I, D
 4.9 **Burning Rate:** 2.7 mm/min.
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** Currently not available
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** Currently not available
 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:** 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:**
 670 ppm/96 hr/rainbow trout/LC50
 820 mg/L /96 hr / fathead minnows/LC50
 1250 ppm/24 hr/sunfish/TL/fresh water
 6.2 **Waterfowl Toxicity:** Currently not available
 6.3 **Biological Oxygen Demand (BOD):** 40%, 5 days
 6.4 **Food Chain Concentration Potential:** Currently not available
 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: 0
 Damage to living resources: 1
 Human Oral hazard: 3
 Human Contact hazard: I
 Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 **Grades of Purity:** Currently not available
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Stable
 7.5 **IMO Pollution Category:** D
 7.6 **Ship Type:** 3
 7.7 **Barge Hull Type:** 2

8. HAZARD CLASSIFICATIONS

8.1 **49 CFR Category:** Keep Away From Food
 8.2 **49 CFR Class:** 6.1
 8.3 **49 CFR Package Group:** III
 8.4 **Marine Pollutant:** No
 8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	2
Instability (Yellow).....	1

 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:** Liquid
 9.2 **Molecular Weight:** 108
 9.3 **Boiling Point at 1 atm:** 554°F = 290°C = 563°K
 9.4 **Freezing Point:** 36°F = 2.4°C = 275.5°K
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 0.9611 at 25°C (liquid)
 9.8 **Liquid Surface Tension:** Not pertinent
 9.9 **Liquid Water Interfacial Tension:** Not pertinent
 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
 9.12 **Latent Heat of Vaporization:** (est.) 240 Btu/lb = 134 cal/g = 5.59 X 10⁵ J/kg
 9.13 **Heat of Combustion:** -14,230 Btu/lb = -7910 cal/g = -331 X 10⁵ 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:** Low

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
55	60.420	85	0.480	75	1.221	65	7.070
60	60.280	90	0.480	80	1.218	70	6.564
65	60.140	95	0.480	85	1.215	75	6.103
70	60.010	100	0.480	90	1.211	80	5.681
75	59.870	105	0.480	95	1.208	85	5.296
80	59.740	110	0.480	100	1.205	90	4.943
85	59.610	115	0.480	105	1.202	95	4.619
90	59.480	120	0.480	110	1.199	100	4.322
95	59.350	125	0.480	115	1.196	105	4.049
100	59.230	130	0.480	120	1.193	110	3.797
105	59.100	135	0.480	125	1.190	115	3.565
110	58.980	140	0.480	130	1.187	120	3.351
115	58.860	145	0.480	135	1.184	125	3.153
120	58.740	150	0.480	140	1.181		
125	58.620			145	1.178		
130	58.500			150	1.175		
				155	1.172		
				160	1.169		
				165	1.166		
				170	1.163		

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		N O T P E R T I N E N T