

ACETONE CYANOHYDRIN

ACY

CAUTIONARY RESPONSE INFORMATION

Common Synonyms alpha-Hydroxy isobutronitrile 2-Hydroxy-2-methylpropanenitrile 2-Methylacetonitrile Propanenitrile, 2-hydroxy-2-methyl		Watery liquid	Colorless	Mild, almond odor.
		Floats and mixes with water. Poisonous vapor is produced.		
<p>AVOID CONTACT WITH LIQUID AND VAPOR. KEEP PEOPLE AWAY. Wear chemical protective suit with self-contained breathing apparatus. Stop discharge if possible. Stay upwind and use water spray to "knock down" vapor. Call fire department. Isolate and remove discharged material. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	Combustible. POISONOUS GASES ARE PRODUCED WHEN HEATED. Vapor may explode if ignited in an enclosed area. WEAR CHEMICAL PROTECTIVE SUIT WITH SELF-CONTAINED BREATHING APPARATUS. Combat fires from safe distance or from protected location. Extinguish with water, dry chemical, alcohol foam, or carbon dioxide. Cool exposed containers with water.			
Exposure	CALL FOR MEDICAL AID. VAPOR POISONOUS IF INHALED. Irritating to eyes, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID POISONOUS IF SWALLOWED. Will burn skin and eyes. Remove contaminated clothing and shoes. Flush affected areas 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.			
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

- Dilute and disperse
- Stop discharge
- Contain
- Collection Systems: Skim
- Salvage waterfowl
- Do not burn

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed
- 2.2 Formula: (CH₃)₂C(OH)CN
- 2.3 IMO/UN Designation: 6.1/1541
- 2.4 DOT ID No.: 1541
- 2.5 CAS Registry No.: 75-86-5
- 2.6 NAERG Guide No.: 155
- 2.7 Standard Industrial Trade Classification: 51484

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Air-supplied mask with canister approved for use with acrylonitrile in less than 2% concentrations; rubber or plastic gloves; cover goggles or face mask; rubber boots; slicker suit; safety helmet.
- 3.2 **Symptoms Following Exposure:** At low dosages the earliest symptoms may be weakness, headaches, confusion and occasionally nausea and vomiting. Respiratory rate and depth will usually be increased at the beginning and at later stages become slow and gasping.
- 3.3 **Treatment of Exposure:** Call a physician for all cases of exposure. **INHALATION:** remove victim to fresh air. (Rescuer should wear suitable mask.) **INGESTION:** if victim is conscious, induce vomiting by having him drink strong salt water. **SKIN:** remove contaminated clothing and wash affected skin thoroughly with soap and water. **EYES:** hold eyelids apart and wash with continuous, gentle stream of water for at least 15 min. If breathing has stopped, give artificial respiration until physician arrives. If victim is unconscious, administer amyl nitrite by crushing an ampule in a cloth and holding it under his nose for 15 seconds in every minute. Do not interrupt artificial respiration during this procedure. Replace ampule when its strength is spent; continue treatment until victim's condition improves or physician arrives.
- 3.4 **TLV-TWA:** Not listed.
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** 4.7 ppm as CN
- 3.7 **Toxicity by Ingestion:** Grade 4; LD₅₀ below 50 mg/kg (mice); LD₅₀ =17mg/kg (rats)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Causes liver damage in rats
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors irritate the eyes and respiratory system if present in high concentrations. The effect is temporary.
- 3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure and may cause secondary burns on long exposure
- 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:** 165°F C.C.
- 4.2 **Flammable Limits in Air:** 2.2%-12%
- 4.3 **Fire Extinguishing Agents:** Water spray, dry chemical, alcohol foam, carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Toxic hydrogen cyanide is generated when heated
- 4.6 **Behavior in Fire:** Not pertinent
- 4.7 **Auto Ignition Temperature:** 1270°F
- 4.8 **Electrical Hazards:** I, D
- 4.9 **Burning Rate:** Currently not available
- 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:** 0.57 mg/L /96 hr/LC50 /bluegill sunfish
- 6.2 **Waterfowl Toxicity:** Not pertinent
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** Currently not available
- 6.5 **GESAMP Hazard Profile:** Bioaccumulation: 0
Damage to living resources: 4
Human Oral hazard: 3
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 98-99%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Pressure-vacuum
- 7.5 **IMO Pollution Category:** A
- 7.6 **Ship Type:** 2
- 7.7 **Barge Hull Type:** 1

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison
- 8.2 **49 CFR Class:** 6.1
- 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).....	2
Instability (Yellow).....	2
- 8.6 **EPA Reportable Quantity:** 10
- 8.7 **EPA Pollution Category:** A
- 8.8 **RCRA Waste Number:** P069
- 8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 85.11
- 9.3 **Boiling Point at 1 atm:** Decomposes (-74.4C)
- 9.4 **Freezing Point:** -5.8°F = -21°C = 252°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 0.925 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):** (est.) 1.074
- 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:** 0.3 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
60	58.330	28	0.693		N		N
62	58.260	30	0.693		O		O
64	58.190	32	0.693		T		T
66	58.120	34	0.693				
68	58.050	36	0.693		P		P
70	57.980	38	0.693		E		E
72	57.910	40	0.693		R		R
74	57.850	42	0.693		T		T
76	57.780	44	0.693		I		I
78	57.710	46	0.693		N		N
80	57.640	48	0.693		E		E
82	57.570	50	0.693		N		N
84	57.500	52	0.693		T		T
86	57.430	54	0.693				
88	57.360	56	0.693				
90	57.290	58	0.693				
92	57.220	60	0.693				
94	57.150	62	0.693				
		64	0.693				
		66	0.693				
		68	0.693				
		70	0.693				
		72	0.693				
		74	0.693				
		76	0.693				
		78	0.693				

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
	M	28	0.001	28	0.00002	30	0.324
	I	30	0.001	30	0.00002	40	0.329
	S	32	0.001	32	0.00002	50	0.333
	C	34	0.001	34	0.00002	60	0.337
	I	36	0.001	36	0.00002	70	0.341
	B	38	0.002	38	0.00003	80	0.345
	L	40	0.002	40	0.00003	90	0.349
	E	42	0.002	42	0.00003	100	0.353
		44	0.002	44	0.00003	110	0.357
		46	0.002	46	0.00004	120	0.361
		48	0.002	48	0.00004	130	0.365
		50	0.003	50	0.00004	140	0.369
		52	0.003	52	0.00005	150	0.373
		54	0.003	54	0.00005	160	0.377
		56	0.004	56	0.00005	170	0.381
		58	0.004	58	0.00006	180	0.385
		60	0.004	60	0.00006	190	0.388
		62	0.005	62	0.00007	200	0.392
		64	0.005	64	0.00007	210	0.396
		66	0.005	66	0.00008	220	0.399
		68	0.006	68	0.00009	230	0.403
		70	0.006	70	0.00009	240	0.407
		72	0.007	72	0.00010	250	0.410
		74	0.007	74	0.00011	260	0.414
		76	0.008	76	0.00012		
		78	0.009	78	0.00013		