

# ACETONITRILE

ATN

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b>		Watery liquid	Colorless	Sweet odor
Cyanomethane Ethanenitrile Ethyl nitrile Methyl cyanide		Floats and mixes with water. Flammable, irritating vapor is produced.		
<p><b>Restrict access.</b>  <b>Wear goggles and self-contained breathing apparatus.</b>  <b>Shut off ignition sources and call fire department.</b>  <b>Stay upwind and use water spray to "knock down" vapor.</b>  <b>Avoid contact with liquid and vapor.</b>  <b>Notify local health and pollution control agencies.</b>  <b>Protect water intakes.</b></p>				
<b>Fire</b>	<p><b>FLAMMABLE</b>  <b>POISONOUS GASES MAY BE PRODUCED WHEN HEATED.</b>                  Flashback along vapor trail may occur.                  Vapor may explode if ignited in an enclosed area.                  Wear goggles and self-contained breathing apparatus.                  Extinguish with dry chemical, alcohol foam, or carbon dioxide.                  Water may be ineffective on fire.                  Cool exposed containers with water.</p>			
<b>Exposure</b>	<p><b>CALL FOR MEDICAL AID.</b></p> <p><b>VAPOR</b>                  Irritating to eyes, nose and throat.                  If inhaled, will cause difficult breathing.                  Move to fresh air.                  If breathing has stopped, give artificial respiration.                  If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b>                  Irritating to skin and eyes.                  Harmful if swallowed.                  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.</p>			
<b>Water Pollution</b>	Dangerous to aquatic life in high 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

### 2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 37; Nitriles
- 2.2 **Formula:** CH<sub>3</sub>CN
- 2.3 **IMO/UN Designation:** 3/1648
- 2.4 **DOT ID No.:** 1648
- 2.5 **CAS Registry No.:** 75-05-8
- 2.6 **NAERG Guide No.:** 131
- 2.7 **Standard Industrial Trade Classification:** 51484

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Wear self-contained breathing apparatus
- 3.2 **Symptoms Following Exposure:** Exposure to 160 ppm for 4 hours causes flushing of the face and a feeling of constriction in the chest; 500 ppm for brief periods is irritating to the nose and throat. Severe exposures cause irritability, skin eruptions, confusion, delirium, convulsions, paralysis, and death due to central nervous system depression.
- 3.3 **Treatment of Exposure:** Remove victim from contaminated atmosphere. Give artificial respiration and oxygen if respiration is impaired.
- 3.4 **TLV-TWA:** 40 ppm
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** 60 ppm.
- 3.7 **Toxicity by Ingestion:** Grade 3; LD<sub>50</sub> = 50-500 mg/kg (guinea pig)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Not pertinent
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. Effect is temporary.
- 3.11 **Liquid or Solid Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
- 3.12 **Odor Threshold:** 40 ppm
- 3.13 **IDLH Value:** 500 ppm
- 3.14 **OSHA PEL-TWA:** 40 ppm
- 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:** 42°F O.C.
- 4.2 **Flammable Limits in Air:** 4.4%-16%
- 4.3 **Fire Extinguishing Agents:** Alcohol foam, dry chemical, carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective
- 4.5 **Special Hazards of Combustion Products:** Toxic vapors are generated when heated
- 4.6 **Behavior in Fire:** Vapor heavier than air and may travel a considerable distance to a source of ignition and flash back.
- 4.7 **Auto Ignition Temperature:** 975°F
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** 2.7 mm/min.
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 17.9 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 4.5 (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:** 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:** 1150 ppm/24 hr/fathead minnow/TL<sub>50</sub>/hard water
- 6.2 **Waterfowl Toxicity:** Not pertinent
- 6.3 **Biological Oxygen Demand (BOD):** 17%, 5 days
- 6.4 **Food Chain Concentration Potential:** None noted
- 6.5 **GESAMP Hazard Profile:** Bioaccumulation: 0  
Damage to living resources: 0  
Human Oral hazard: 2  
Human Contact hazard: 1  
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:** Pressure-vacuum
- 7.5 **IMO Pollution Category:** III
- 7.6 **Ship Type:** 3
- 7.7 **Barge Hull Type:** 3

### 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable liquid
- 8.2 **49 CFR Class:** 3
- 8.3 **49 CFR Package Group:** II
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	3
Instability (Yellow).....	1
- 8.6 **EPA Reportable Quantity:** 5000 pounds
- 8.7 **EPA Pollution Category:** D
- 8.8 **RCRA Waste Number:** U003
- 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:** 41.05
- 9.3 **Boiling Point at 1 atm:** 179°F = 81.6°C = 354.8°K
- 9.4 **Freezing Point:** -50.3°F = -45.7°C = 227.5°K
- 9.5 **Critical Temperature:** 526.5°F = 274.7°C = 547.9°K
- 9.6 **Critical Pressure:** 701 pisa = 47.7 atm = 4.83 MN/m<sup>2</sup>
- 9.7 **Specific Gravity:** 0.787 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 1.4
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.192
- 9.12 **Latent Heat of Vaporization:** 313 Btu/lb = 174 cal/g = 7.29 X 10<sup>5</sup> J/kg
- 9.13 **Heat of Combustion:** -13,360 Btu/lb = -7420 cal/g = -310.7 X 10<sup>5</sup> 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:** 0.02 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
-40	52.920	52	0.540		N		N
-30	52.540	54	0.540		O		O
-20	52.160	56	0.540		T		T
-10	51.790	58	0.540				
0	51.410	60	0.540		P		P
10	51.030	62	0.540		E		E
20	50.650	64	0.540		R		R
30	50.260	66	0.540		T		T
40	49.880	68	0.540		I		I
50	49.500	70	0.540		N		N
60	49.120	72	0.540		E		E
70	48.730	74	0.540		N		N
80	48.350	76	0.540		T		T
90	47.970	78	0.540				
100	47.580	80	0.540				
110	47.200	82	0.540				
120	46.810	84	0.540				
130	46.420	86	0.540				
140	46.040						
150	45.650						
160	45.260						
170	44.870						

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	10	0.209	10	0.00170	0	0.280
	I	20	0.298	20	0.00237	25	0.287
	S	30	0.417	30	0.00326	50	0.295
	C	40	0.575	40	0.00440	75	0.303
	I	50	0.781	50	0.00586	100	0.310
	B	60	1.046	60	0.00770	125	0.317
	L	70	1.383	70	0.00996	150	0.324
	E	80	1.805	80	0.01279	175	0.332
		90	2.329	90	0.01620	200	0.338
		100	2.972	100	0.02031	225	0.345
		110	3.755	110	0.02521	250	0.352
		120	4.699	120	0.03100	275	0.359
		130	5.829	130	0.03780	300	0.365
		140	7.169	140	0.04572	325	0.372
		150	8.747	150	0.05487	350	0.378
		160	10.590	160	0.06538	375	0.384
		170	12.740	170	0.07737	400	0.390
		180	15.220	180	0.09097	425	0.396
		190	18.060	190	0.10630	450	0.402
		200	21.310	200	0.12350	475	0.408
		210	25.000	210	0.14280	500	0.414
		220	29.170	220	0.16410	525	0.419
		230	33.870	230	0.18780	550	0.425
						575	0.430
						600	0.435