

# PYRIDINE

PRD

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b>	Liquid	Colorless to yellow	Sharp, nauseating odor
Mixes with water. Poisonous, flammable vapor is produced.			
<p>Evacuate.                  Keep people away. <b>AVOID CONTACT WITH LIQUID AND VAPOR.</b>                  Wear chemical protective suit with self-contained breathing apparatus.                  Shut off ignition sources and call fire department.                  Stay upwind and use water spray to "knock down" vapor.                  Notify local health and pollution control agencies.                  Protect water intakes.</p>			
<b>Fire</b>	<p><b>FLAMMABLE.</b>                  Flashback along vapor trail may occur.                  Vapor may explode if ignited in an enclosed area.                  Wear chemical protective suit with 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>CALL FOR MEDICAL AID.</p> <p>VAPOR                  Poisonous if inhaled or if skin is exposed.                  Irritating to eyes, nose and throat.                  Move to fresh air.                  If breathing has stopped, give artificial respiration.                  If breathing is difficult, give oxygen.</p> <p>LIQUID                  Poisonous if swallowed or if skin is exposed.                  Will burn eyes.                  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 and have victim induce vomiting.                  IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>		
<b>Water Pollution</b>	<p>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.</p>		

### 1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse  
Stop discharge

### 2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 9; Aromatic amine
- 2.2 Formula: C<sub>5</sub>H<sub>5</sub>N
- 2.3 IMO/UN Designation: 3.2/1282
- 2.4 DOT ID No.: 1282
- 2.5 CAS Registry No.: 110-86-1
- 2.6 NAERG Guide No.: 129
- 2.7 Standard Industrial Trade Classification: 51574

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Air-supplied mask or organic canister; vapor-proof goggles; rubber gloves and protective clothing.
- 3.2 **Symptoms Following Exposure:** Vapor irritates eyes and nose. Liquid irritates skin and is absorbed through the skin. Overexposure causes nausea, headache, nervous symptoms, increased urinary frequency.
- 3.3 **Treatment of Exposure:** INHALATION: remove individual promptly from contaminated area; give artificial respiration and oxygen if necessary; treat symptomatically. INGESTION: induce vomiting and follow with gastric lavage. SKIN: wash thoroughly with large amounts of water. EYES: irrigate with water for at least 15 min.
- 3.4 TLV-TWA: 5 ppm
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 2; LD<sub>50</sub> = 0.5 to 5 g/kg (rat)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Liver and kidney damage after ingestion.
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.
- 3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.
- 3.12 **Odor Threshold:** 0.021 ppm
- 3.13 **IDLH Value:** 1,000 ppm
- 3.14 **OSHA PEL-TWA:** 5 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:** 68°F C.C.
- 4.2 **Flammable Limits in Air:** 1.8%-12.4%
- 4.3 **Fire Extinguishing Agents:** Alcohol foam, dry chemical, or carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective.
- 4.5 **Special Hazards of Combustion Products:** Not pertinent
- 4.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to source of ignition and flash back.
- 4.7 **Auto Ignition Temperature:** 900°F
- 4.8 **Electrical Hazards:** Class I, Group D
- 4.9 **Burning Rate:** 4.3 mm/min.
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 34.5 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 8.5 (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:** None
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Flush with water.
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

### 6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** 1350 mg/l/96 hr/fish/TL<sub>100</sub>/fresh water
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** 1.15-1.47 lb/lb, 5 days
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:** Bioaccumulation: 0  
Damage to living resources: 1/BOD  
Human Oral hazard: 1  
Human Contact hazard: I  
Reduction of amenities: XX

### 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical; Pure
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Pressure-vacuum
- 7.5 **IMO Pollution Category:** D
- 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).....	0
- 8.6 **EPA Reportable Quantity:** 1000 pounds
- 8.7 **EPA Pollution Category:** C
- 8.8 **RCRA Waste Number:** U196/D038
- 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:** 79.10
- 9.3 **Boiling Point at 1 atm:** 239.5°F = 115.3°C = 388.5°K
- 9.4 **Freezing Point:** -44°F = -42°C = 231°K
- 9.5 **Critical Temperature:** 656.2°F = 346.8°C = 620°K
- 9.6 **Critical Pressure:** 817.3 psia = 55.6 atm = 5.63 MN/m<sup>2</sup>
- 9.7 **Specific Gravity:** 0.983 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** 38.0 dynes/cm = 0.038 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 2.73
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.123
- 9.12 **Latent Heat of Vaporization:** 193 Btu/lb = 107 cal/g = 4.48 X 10<sup>5</sup> J/kg
- 9.13 **Heat of Combustion:** -14,390 Btu/lb = -7992 cal/g = -334.6 X 10<sup>5</sup> J/kg
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** (est.) -13 Btu/lb = -7 cal/g = -0.3 X 10<sup>5</sup> J/kg
- 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:** 0.77 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
35	62.320	0	0.390		N		N
40	62.150	10	0.393		O		O
45	61.970	20	0.396		T		T
50	61.800	30	0.399				
55	61.630	40	0.402		P		P
60	61.450	50	0.406		E		E
65	61.280	60	0.409		R		R
70	61.100	70	0.412		T		T
75	60.930	80	0.415		I		I
80	60.760	90	0.418		N		N
85	60.580	100	0.421		E		E
90	60.410	110	0.425		N		N
95	60.240	120	0.428		T		T
100	60.060	130	0.431				
105	59.890	140	0.434				
110	59.720	150	0.437				
115	59.540	160	0.440				
120	59.370	170	0.444				
125	59.200	180	0.447				
130	59.020	190	0.450				
135	58.850	200	0.453				
140	58.680	210	0.456				

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	60	0.233	60	0.00331	0	0.193
	I	70	0.322	70	0.00449	25	0.206
	S	80	0.439	80	0.00600	50	0.219
	C	90	0.590	90	0.00791	75	0.232
	I	100	0.782	100	0.01030	100	0.245
	B	110	1.024	110	0.01325	125	0.257
	L	120	1.326	120	0.01685	150	0.269
	E	130	1.698	130	0.02122	175	0.281
		140	2.153	140	0.02645	200	0.293
		150	2.703	150	0.03267	225	0.304
		160	3.364	160	0.04001	250	0.315
		170	4.152	170	0.04859	275	0.325
		180	5.084	180	0.05857	300	0.336
		190	6.178	190	0.07008	325	0.346
		200	7.455	200	0.08327	350	0.355
		210	8.935	210	0.09832	375	0.365
		220	10.640	220	0.11540	400	0.374
		230	12.600	230	0.13460	425	0.383
		240	14.830	240	0.15620	450	0.392
		250	17.360	250	0.18020	475	0.401
		260	20.220	260	0.20700	500	0.409
		270	23.430	270	0.23660	525	0.417
		280	27.030	280	0.26920	550	0.425
		290	31.040	290	0.30510	575	0.433
		300	35.490	300	0.34420	600	0.440