

# NICOTINE

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## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> 1-Methyl-2-(3-pyridyl)pyrrolidine 3-(1-Methyl-2-pyrrolidyl)pyridine		Liquid	Colorless to brown	Fishy odor
Mixes with water.				
<p><b>KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID.</b>                      Wear rubber overclothing (including gloves).                      Call fire department.                      Notify local health and pollution control agencies.                      Protect water intakes.</p>				
<b>Fire</b>	Combustible. POISONOUS GASES ARE PRODUCED WHEN HEATED. Wear goggles and self-contained breathing apparatus. Extinguish with dry chemicals, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.			
<b>Exposure</b>	CALL FOR MEDICAL AID. LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Irritating to 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.			
<b>Water Pollution</b>	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.			

<p><b>1. CORRECTIVE RESPONSE ACTIONS</b>                      Stop discharge                      Do not burn</p>	<p><b>2. CHEMICAL DESIGNATIONS</b>                      2.1 <b>CG Compatibility Group:</b> Not listed.                      2.2 <b>Formula:</b> C<sub>10</sub>H<sub>14</sub>N<sub>2</sub>                      2.3 <b>IMO/UN Designation:</b> 6.1/1654                      2.4 <b>DOT ID No.:</b> 1654                      2.5 <b>CAS Registry No.:</b> 54-11-5                      2.6 <b>NAERG Guide No.:</b> 151                      2.7 <b>Standard Industrial Trade Classification:</b> 51577</p>
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 <b>Personal Protective Equipment:</b> Goggles or face shield; rubber gloves; protective clothing</p> <p>3.2 <b>Symptoms Following Exposure:</b> Inhalation causes burning sensation in mouth and throat, nausea, headache, confusion, visual disturbances. Contact with liquid irritates eyes and causes local irritation of skin. Can be absorbed through skin in toxic amounts. Ingestion causes burning of mouth and stomach, vomiting, excitement, faintness, paralysis of lungs.</p> <p>3.3 <b>Treatment of Exposure:</b> Speed of treatment is important following exposure to this compound. Ingestion of as little as 40 mg can be fatal. EYES: flush with water for at least 15 min. SKIN: wash thoroughly and immediately with cold water. INGESTION: call for physician at once; give 6-8 tablespoons of activated charcoal as a slurry in water; give artificial respiration if breathing has stopped.</p> <p>3.4 <b>TLV-TWA:</b> 0.5 mg/m<sup>3</sup></p> <p>3.5 <b>TLV-STEL:</b> Not listed.</p> <p>3.6 <b>TLV-Ceiling:</b> Not listed.</p> <p>3.7 <b>Toxicity by Ingestion:</b> Grade 4; oral LD<sub>50</sub> = 53 mg/kg (rat), 1 mg/kg (human)</p> <p>3.8 <b>Toxicity by Inhalation:</b> Currently not available.</p> <p>3.9 <b>Chronic Toxicity:</b> Birth defects (skeletal) in rats</p> <p>3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Vapors are nonirritating to eyes and throat.</p> <p>3.11 <b>Liquid or Solid Characteristics:</b> No appreciable hazard. Practically harmless to the skin.</p> <p>3.12 <b>Odor Threshold:</b> Currently not available</p> <p>3.13 <b>IDLH Value:</b> 5 mg/m<sup>3</sup></p> <p>3.14 <b>OSHA PEL-TWA:</b> 0.5 mg/m<sup>3</sup></p> <p>3.15 <b>OSHA PEL-STEL:</b> Not listed.</p> <p>3.16 <b>OSHA PEL-Ceiling:</b> Not listed.</p> <p>3.17 <b>EPA AEGL:</b> Not listed</p>	

<p><b>4. FIRE HAZARDS</b></p> <p>4.1 <b>Flash Point:</b> Currently not available</p> <p>4.2 <b>Flammable Limits in Air:</b> 0.7%-4.0%</p> <p>4.3 <b>Fire Extinguishing Agents:</b> Dry chemical, alcohol foam, carbon dioxide</p> <p>4.4 <b>Fire Extinguishing Agents Not to Be Used:</b> Water or foam may cause frothing.</p> <p>4.5 <b>Special Hazards of Combustion Products:</b> Smoke may contain toxic vapors of unburned compound.</p> <p>4.6 <b>Behavior in Fire:</b> Not pertinent</p> <p>4.7 <b>Auto Ignition Temperature:</b> 471°F</p> <p>4.8 <b>Electrical Hazards:</b> Currently not available</p> <p>4.9 <b>Burning Rate:</b> Currently not available</p> <p>4.10 <b>Adiabatic Flame Temperature:</b> Currently not available</p> <p>4.11 <b>Stoichiometric Air to Fuel Ratio:</b> 73.8 (calc.)</p> <p>4.12 <b>Flame Temperature:</b> Currently not available</p> <p>4.13 <b>Combustion Molar Ratio (Reactant to Product):</b> 19.0 (calc.)</p> <p>4.14 <b>Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed</p>	<p><b>7. SHIPPING INFORMATION</b></p> <p>7.1 <b>Grades of Purity:</b> 93-98%</p> <p>7.2 <b>Storage Temperature:</b> Ambient</p> <p>7.3 <b>Inert Atmosphere:</b> No requirement</p> <p>7.4 <b>Venting:</b> Pressure-vacuum</p> <p>7.5 <b>IMO Pollution Category:</b> Currently not available</p> <p>7.6 <b>Ship Type:</b> Currently not available</p> <p>7.7 <b>Barge Hull Type:</b> Currently not available</p>								
<p><b>5. CHEMICAL REACTIVITY</b></p> <p>5.1 <b>Reactivity with Water:</b> No reaction</p> <p>5.2 <b>Reactivity with Common Materials:</b> No reaction</p> <p>5.3 <b>Stability During Transport:</b> Stable</p> <p>5.4 <b>Neutralizing Agents for Acids and Caustics:</b> Not pertinent</p> <p>5.5 <b>Polymerization:</b> Not pertinent</p> <p>5.6 <b>Inhibitor of Polymerization:</b> Not pertinent</p>	<p><b>8. HAZARD CLASSIFICATIONS</b></p> <p>8.1 <b>49 CFR Category:</b> Poison</p> <p>8.2 <b>49 CFR Class:</b> 6.1</p> <p>8.3 <b>49 CFR Package Group:</b> II</p> <p>8.4 <b>Marine Pollutant:</b> No</p> <p>8.5 <b>NFPA Hazard Classification:</b></p> <table border="1"> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue).....</td> <td>4</td> </tr> <tr> <td>Flammability (Red).....</td> <td>1</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </tbody> </table> <p>8.6 <b>EPA Reportable Quantity:</b> Not listed.</p> <p>8.7 <b>EPA Pollution Category:</b> Not listed.</p> <p>8.8 <b>RCRA Waste Number:</b> P075</p> <p>8.9 <b>EPA FWPC List:</b> Not listed</p>	Category	Classification	Health Hazard (Blue).....	4	Flammability (Red).....	1	Instability (Yellow).....	0
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<p><b>6. WATER POLLUTION</b></p> <p>6.1 <b>Aquatic Toxicity:</b> 3-29 ppm/fish/toxic/fresh water *Time period not specified.</p> <p>6.2 <b>Waterfowl Toxicity:</b> LD<sub>50</sub> = 587 mg/kg</p> <p>6.3 <b>Biological Oxygen Demand (BOD):</b> Currently not available</p> <p>6.4 <b>Food Chain Concentration Potential:</b> None</p> <p>6.5 <b>GESAMP Hazard Profile:</b> Bioaccumulation: 0 Damage to living resources: 3 Human Oral hazard: 3 Human Contact hazard: II Reduction of amenities: XXX</p>	<p><b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b></p> <p>9.1 <b>Physical State at 15°C and 1 atm:</b> Liquid</p> <p>9.2 <b>Molecular Weight:</b> 162.2</p> <p>9.3 <b>Boiling Point at 1 atm:</b> (decomposes) 482°F = 250°C = 523°K</p> <p>9.4 <b>Freezing Point:</b> Not pertinent</p> <p>9.5 <b>Critical Temperature:</b> Not pertinent</p> <p>9.6 <b>Critical Pressure:</b> Not pertinent</p> <p>9.7 <b>Specific Gravity:</b> 1.016 at 20°C (liquid)</p> <p>9.8 <b>Liquid Surface Tension:</b> 38.61 dynes/cm = 0.03861 N/m at 20°C</p> <p>9.9 <b>Liquid Water Interfacial Tension:</b> (est.) 20 dynes/cm = 0.020 N/m at 20°C</p> <p>9.10 <b>Vapor (Gas) Specific Gravity:</b> Not pertinent</p> <p>9.11 <b>Ratio of Specific Heats of Vapor (Gas):</b> Not pertinent</p> <p>9.12 <b>Latent Heat of Vaporization:</b> Not pertinent</p> <p>9.13 <b>Heat of Combustion:</b> -15,836 Btu/lb = -8,798 cal/g = -368.1 X 10<sup>3</sup> J/kg</p> <p>9.14 <b>Heat of Decomposition:</b> Not pertinent</p> <p>9.15 <b>Heat of Solution:</b> Not pertinent</p> <p>9.16 <b>Heat of Polymerization:</b> Not pertinent</p> <p>9.17 <b>Heat of Fusion:</b> Currently not available</p> <p>9.18 <b>Limiting Value:</b> Currently not available</p> <p>9.19 <b>Reid Vapor Pressure:</b> Currently not available</p>								
<p>NOTES</p>									

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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
28	64.410	34	0.420	34	1.048	65	4.714
30	64.360	36	0.420	36	1.048	70	4.348
32	64.299	38	0.420	38	1.048	75	4.017
34	64.240	40	0.420	40	1.048	80	3.716
36	64.190	42	0.420	42	1.048	85	3.442
38	64.129	44	0.420	44	1.048	90	3.193
40	64.080	46	0.420	46	1.048	95	2.967
42	64.020	48	0.420	48	1.048	100	2.759
44	63.970	50	0.420	50	1.048	105	2.570
46	63.910	52	0.420	52	1.048	110	2.397
48	63.860	54	0.420	54	1.048	115	2.238
50	63.800	56	0.420	56	1.048	120	2.092
52	63.740	58	0.420	58	1.048	125	1.958
54	63.690	60	0.420	60	1.048		
56	63.630	62	0.420	62	1.048		
58	63.580	64	0.420	64	1.048		
60	63.520	66	0.420	66	1.048		
62	63.470	68	0.420	68	1.048		
64	63.410	70	0.420	70	1.048		
66	63.360	72	0.420	72	1.048		
68	63.300	74	0.420	74	1.048		
70	63.250	76	0.420	76	1.048		
		78	0.420	78	1.048		
		80	0.420	80	1.048		
		82	0.420	82	1.048		
		84	0.420	84	1.048		

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	220	0.251	220	0.00559		N
	I	230	0.311	230	0.00681		O
	S	240	0.382	240	0.00824		T
	C	250	0.466	250	0.00993		
	I	260	0.567	260	0.01190		P
	B	270	0.685	270	0.01418		E
	L	280	0.823	280	0.01681		R
	E	290	0.985	290	0.01985		T
		300	1.172	300	0.02332		I
		310	1.390	310	0.02728		N
		320	1.640	320	0.03178		E
		330	1.927	330	0.03687		N
		340	2.255	340	0.04262		T
		350	2.630	350	0.04907		
		360	3.054	360	0.05630		
		370	3.535	370	0.06438		
		380	4.077	380	0.07336		
		390	4.686	390	0.08333		
		400	5.369	400	0.09437		
		410	6.132	410	0.10650		
		420	6.983	420	0.11990		
		430	7.928	430	0.13460		
		440	8.976	440	0.15080		
		450	10.130	450	0.16830		
		460	11.410	460	0.18750		
		470	12.820	470	0.20840		