

# NITROBENZENE

NTB

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Essence of mirbane Nitrobenzol Oil of mirbane	Oily liquid Light yellow to brown Almond or shoe polish odor
Sinks in water. Freezing point is 41°F.	
<p>Keep people away. <b>AVOID CONTACT WITH LIQUID AND VAPOR.</b>                  Wear chemical protective suit with self-contained breathing apparatus.                  Call fire department.                  Notify local health and pollution control agencies.                  Protect water intakes.</p>	
<b>Fire</b>	Combustible. POISONOUS VAPOR IS PRODUCED WHEN HEATED. Wear chemical protective suit with self-contained breathing apparatus. Extinguish with water, dry chemical, foam, or carbon dioxide. Cool exposed containers in water.
<b>Exposure</b>	CALL FOR MEDICAL AID. 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.
<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.

<b>1. CORRECTIVE RESPONSE ACTIONS</b> Stop discharge Collection Systems: Pump; Dredge Do not burn	<b>2. CHEMICAL DESIGNATIONS</b> <b>2.1 CG Compatibility Group:</b> 42; Nitrocompounds <b>2.2 Formula:</b> C <sub>6</sub> H <sub>5</sub> NO <sub>2</sub> <b>2.3 IMO/UN Designation:</b> 6.1/1662 <b>2.4 DOT ID No.:</b> 1662 <b>2.5 CAS Registry No.:</b> 98-95-3 <b>2.6 NAERG Guide No.:</b> 152 <b>2.7 Standard Industrial Trade Classification:</b> 51140
<b>3. HEALTH HAZARDS</b> <b>3.1 Personal Protective Equipment:</b> Respirator approved for organic vapors; rubber gloves; splashproof goggles; eyewash fountain, safety shower and medical oxygen supply. <b>3.2 Symptoms Following Exposure:</b> Highly toxic when absorbed through the skin, inhaled as vapor, or swallowed. First symptoms are a blue discoloration of the lips, nails, and skin. Acute poisoning produces headache, giddiness, weakness, nausea, vomiting, and coma. <b>3.3 Treatment of Exposure:</b> Remove to fresh air and call a physician at once. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 min. If cyanosis (blue discoloration) is present, shower with soap and warm water, with special attention to scalp and fingernails. Administer oxygen until physician arrives. <b>3.4 TLV-TWA:</b> 1 ppm <b>3.5 TLV-STEL:</b> Not listed. <b>3.6 TLV-Ceiling:</b> Not listed. <b>3.7 Toxicity by Ingestion:</b> Grade 3; LD <sub>50</sub> = 50-500 mg/kg (dog) <b>3.8 Toxicity by Inhalation:</b> Currently not available. <b>3.9 Chronic Toxicity:</b> Currently not available <b>3.10 Vapor (Gas) Irritant Characteristics:</b> Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations. <b>3.11 Liquid or Solid Characteristics:</b> Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure. <b>3.12 Odor Threshold:</b> 5.94 ppm <b>3.13 IDLH Value:</b> 200 ppm <b>3.14 OSHA PEL-TWA:</b> 1 ppm. <b>3.15 OSHA PEL-STEL:</b> Not listed. <b>3.16 OSHA PEL-Ceiling:</b> Not listed. <b>3.17 EPA AEGL:</b> Not listed	

<b>4. FIRE HAZARDS</b> <b>4.1 Flash Point:</b> 171°F O.C. 190°F C.C. <b>4.2 Flammable Limits in Air:</b> 1.8% LEL (UEL not available) <b>4.3 Fire Extinguishing Agents:</b> Water, foam, carbon dioxide, or dry chemical <b>4.4 Fire Extinguishing Agents Not to Be Used:</b> Not pertinent <b>4.5 Special Hazards of Combustion</b> Products: Poisonous nitrogen oxides may be produced <b>4.6 Behavior in Fire:</b> Not pertinent <b>4.7 Auto Ignition Temperature:</b> 924°F <b>4.8 Electrical Hazards:</b> Not pertinent <b>4.9 Burning Rate:</b> 2.9 mm/min. <b>4.10 Adiabatic Flame Temperature:</b> Currently not available <b>4.11 Stoichiometric Air to Fuel Ratio:</b> 34.5 (calc.) <b>4.12 Flame Temperature:</b> Currently not available <b>4.13 Combustion Molar Ratio (Reactant to Product):</b> 8.5 (calc.) <b>4.14 Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed	<b>7. SHIPPING INFORMATION</b> <b>7.1 Grades of Purity:</b> Technical: 99.5-100% <b>7.2 Storage Temperature:</b> Ambient <b>7.3 Inert Atmosphere:</b> No requirement <b>7.4 Venting:</b> Open (flame arrester) <b>7.5 IMO Pollution Category:</b> B <b>7.6 Ship Type:</b> 2 <b>7.7 Barge Hull Type:</b> 1 <b>8. HAZARD CLASSIFICATIONS</b> <b>8.1 49 CFR Category:</b> Poison <b>8.2 49 CFR Class:</b> 6.1 <b>8.3 49 CFR Package Group:</b> II <b>8.4 Marine Pollutant:</b> No <b>8.5 NFPA Hazard Classification:</b> <table border="1"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>3</td> </tr> <tr> <td>Flammability (Red).....</td> <td>2</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table> <b>8.6 EPA Reportable Quantity:</b> 1000 pounds <b>8.7 EPA Pollution Category:</b> C <b>8.8 RCRA Waste Number:</b> U169/D036 <b>8.9 EPA FWPCA List:</b> Yes	Category	Classification	Health Hazard (Blue).....	3	Flammability (Red).....	2	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	3								
Flammability (Red).....	2								
Instability (Yellow).....	0								
<b>5. CHEMICAL REACTIVITY</b> <b>5.1 Reactivity with Water:</b> No reaction <b>5.2 Reactivity with Common Materials:</b> No reaction <b>5.3 Stability During Transport:</b> Stable <b>5.4 Neutralizing Agents for Acids and Caustics:</b> Not pertinent <b>5.5 Polymerization:</b> Not pertinent <b>5.6 Inhibitor of Polymerization:</b> Not pertinent	<b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b> <b>9.1 Physical State at 15° C and 1 atm:</b> Liquid <b>9.2 Molecular Weight:</b> 123.11 <b>9.3 Boiling Point at 1 atm:</b> 411.6°F = 210.9°C = 484.1°K <b>9.4 Freezing Point:</b> 41.2°F = 5.1°C = 278.3°K <b>9.5 Critical Temperature:</b> 836.6°F = 447°C = 720.2°K <b>9.6 Critical Pressure:</b> 700 psia = 47.62 atm = 4.824 MN/m <sup>2</sup> <b>9.7 Specific Gravity:</b> 1.204 at 20°C (liquid) <b>9.8 Liquid Surface Tension:</b> 43.9 dynes/cm = 0.0439 N/m at 20°C <b>9.9 Liquid Water Interfacial Tension:</b> 25.66 dynes/cm = 0.02566 N/m at 20°C <b>9.10 Vapor (Gas) Specific Gravity:</b> Not pertinent <b>9.11 Ratio of Specific Heats of Vapor (Gas):</b> Not pertinent <b>9.12 Latent Heat of Vaporization:</b> 150 Btu/lb = 85 cal/g = 3.6 X 10 <sup>5</sup> J/kg <b>9.13 Heat of Combustion:</b> -10,420 Btu/lb = -5,791 cal/g = -242.5 X 10 <sup>3</sup> J/kg <b>9.14 Heat of Decomposition:</b> Not pertinent <b>9.15 Heat of Solution:</b> Not pertinent <b>9.16 Heat of Polymerization:</b> Not pertinent <b>9.17 Heat of Fusion:</b> 22.50 cal/g <b>9.18 Limiting Value:</b> Currently not available <b>9.19 Reid Vapor Pressure:</b> 0.01 psia								
<b>6. WATER POLLUTION</b> <b>6.1 Aquatic Toxicity:</b> 20 ppm/6 hr/minnow/lethal/fresh water <b>6.2 Waterfowl Toxicity:</b> Currently not available <b>6.3 Biological Oxygen Demand (BOD):</b> 0%, 5 days <b>6.4 Food Chain Concentration Potential:</b> None <b>6.5 GESAMP Hazard Profile:</b> Not listed									
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	75.549	50	0.360		N	55	2.285
60	75.379	51	0.360		O	60	2.172
65	75.209	52	0.360		T	65	2.067
70	75.040	53	0.360			70	1.969
75	74.870	54	0.360		P	75	1.877
80	74.690	55	0.360		E	80	1.792
85	74.520	56	0.360		R	85	1.711
90	74.349	57	0.360		T	90	1.636
95	74.179	58	0.360		I	95	1.565
100	74.009	59	0.360		N	100	1.498
105	73.839	60	0.360		E	105	1.436
110	73.669	61	0.360		N	110	1.377
115	73.490	62	0.360		T	115	1.321
120	73.320	63	0.360			120	1.269
125	73.150	64	0.360			125	1.219
130	72.980	65	0.360			130	1.172
135	72.809	66	0.360			135	1.128
140	72.639	67	0.360			140	1.086
145	72.459	68	0.360			145	1.046
150	72.290	69	0.360			150	1.009
155	72.120	70	0.360			155	0.973
160	71.950	71	0.360				
165	71.780	72	0.360				
170	71.610	73	0.360				
175	71.429	74	0.360				
		75	0.360				

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
68	0.190	70	0.004	70	0.00008		N
		80	0.006	80	0.00012		O
		90	0.008	90	0.00017		T
		100	0.012	100	0.00025		
		110	0.017	110	0.00035		P
		120	0.025	120	0.00049		E
		130	0.034	130	0.00067		R
		140	0.048	140	0.00091		T
		150	0.065	150	0.00123		I
		160	0.088	160	0.00163		N
		170	0.118	170	0.00216		E
		180	0.157	180	0.00282		N
		190	0.207	190	0.00366		T
		200	0.271	200	0.00471		
		210	0.352	210	0.00602		
		220	0.452	220	0.00763		
		230	0.578	230	0.00961		
		240	0.733	240	0.01201		
		250	0.923	250	0.01492		
		260	1.156	260	0.01842		
		270	1.438	270	0.02260		
		280	1.778	280	0.02757		
		290	2.187	290	0.03346		
		300	2.675	300	0.04038		