

NITROMETHANE

NMT

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Nitrocarbol		Watery liquid	Colorless	Strong odor
Sinks and mixes slowly with water. Irritating vapor is produced.				
<p>Keep people away. Avoid contact with liquid and vapor. Shut off ignition sources and call fire department. Avoid contact with vapor. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear self-contained breathing apparatus. Evacuate surrounding area in large fire. Combat fires from behind barrier. Extinguish with water, foam, dry chemicals, or carbon dioxide. Cool exposed containers with water. Continue cooling after fire has been extinguished.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. Harmful if inhaled. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID No appreciable harm to skin or eyes. Harmful if swallowed. Flush affected areas with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.</p>			
Water Pollution	<p>Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>			

<p>1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge</p>	<p>2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: Not listed. 2.2 Formula: CH₃NO₂ 2.3 IMO/JUN Designation: 3.3/1261 2.4 DOT ID No.: 1261 2.5 CAS Registry No.: 75-52-5 2.6 NAERG Guide No.: 129 2.7 Standard Industrial Trade Classification: 51140</p>
<p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: Air mask (do NOT use organic canister); goggles. 3.2 Symptoms Following Exposure: Liquid may dry out skin and cause irritation. 3.3 Treatment of Exposure: EYES: flush with water for at least 15 min. SKIN: flush with water. 3.4 TLV-TWA: 20 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 2; LD₅₀ = 0.5 to 5 g/kg (rat) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Currently not available 3.10 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary. 3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin. 3.12 Odor Threshold: Less than 200 ppm 3.13 IDLH Value: 750 ppm 3.14 OSHA PEL-TWA: 100 ppm 3.15 OSHA PEL-STEL: Not listed. 3.16 OSHA PEL-Ceiling: Not listed. 3.17 EPA AEGL: Not listed</p>	

4. FIRE HAZARDS

- 4.1 **Flash Point:** 110°F O.C. 95°F C.C.
- 4.2 **Flammable Limits in Air:** 7.3% (LEL)
- 4.3 **Fire Extinguishing Agents:** Water, foam, dry chemical, carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Not pertinent
- 4.6 **Behavior in Fire:** Containers may explode
- 4.7 **Auto Ignition Temperature:** 785°F
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** 1.1 mm/min.
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 8.3 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 3.5 (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:** Wet material corrodes steel and copper, but the reaction is slow.
- 5.3 **Stability During Transport:** Considered stable, but may become sensitized by organic bases (amines) and some metal oxides, such as lead pigments.
- 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:** Currently not available
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: 0
 Damage to living resources: (1)
 Human Oral hazard: 1
 Human Contact hazard: 1
 Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 95-99%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Open or pressure-vacuum
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** Currently not available

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).....	1
Flammability (Red).....	3
Instability (Yellow).....	4
- 8.6 **EPA Reportable Quantity:** Not listed.
- 8.7 **EPA Pollution Category:** Not listed.
- 8.8 **RCRA Waste Number:** Not listed
- 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:** 61.04
- 9.3 **Boiling Point at 1 atm:** 214.2°F = 101.2°C = 374.4°K
- 9.4 **Freezing Point:** -20°F = -29°C = 244°K
- 9.5 **Critical Temperature:** 599.0°F = 315°C = 588.2°K
- 9.6 **Critical Pressure:** 915.8 psia = 62.3 atm = 6.311 MN/m²
- 9.7 **Specific Gravity:** 1.139 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** 37.0 dynes/cm = 0.0370 N/m at 20°C
- 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):** 1.172
- 9.12 **Latent Heat of Vaporization:** 241 Btu/lb = 134 cal/g = 5.61 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** -4531 Btu/lb = -2517 cal/g = -105.4 X 10⁵ J/kg
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** (est.) -9 Btu/lb = -5 cal/g = -0.2 X 10⁵ 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:** Currently not available

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	72.589	-10	0.406	75	1.414		
40	72.360	0	0.408	80	1.410		N
45	72.139	10	0.410	85	1.407		O
50	71.910	20	0.412	90	1.403		T
55	71.690	30	0.415	95	1.400		
60	71.459	40	0.417	100	1.397		P
65	71.230	50	0.419	105	1.393		E
70	71.009	60	0.421	110	1.390		R
75	70.780	70	0.423	115	1.387		T
80	70.559	80	0.426	120	1.383		I
85	70.330	90	0.428	125	1.380		N
90	70.110	100	0.430	130	1.376		E
95	69.879	110	0.432	135	1.373		T
100	69.660	120	0.435	140	1.370		
105	69.429	130	0.437	145	1.366		
110	69.209	140	0.439	150	1.363		
115	68.980			155	1.359		
120	68.759			160	1.356		
125	68.530			165	1.353		
130	68.299			170	1.349		
135	68.080						
140	67.849						
145	67.629						
150	67.400						
155	67.179						
160	66.950						

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	10.000	60	0.381	60	0.00417	0	0.202
		70	0.524	70	0.00563	25	0.209
		80	0.711	80	0.00749	50	0.217
		90	0.951	90	0.00984	75	0.224
		100	1.255	100	0.01275	100	0.231
		110	1.636	110	0.01633	125	0.238
		120	2.109	120	0.02069	150	0.245
		130	2.689	130	0.02594	175	0.252
		140	3.395	140	0.03220	200	0.259
		150	4.246	150	0.03960	225	0.266
		160	5.264	160	0.04830	250	0.272
		170	6.470	170	0.05843	275	0.279
		180	7.891	180	0.07015	300	0.286
		190	9.553	190	0.08361	325	0.292
		200	11.480	200	0.09899	350	0.298
		210	13.710	210	0.11640	375	0.305
						400	0.311
						425	0.317
						450	0.323
						475	0.329
						500	0.334
						525	0.340
						550	0.346
						575	0.351
						600	0.357