

# NONANE

NAN

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> n-Nonane	Liquid Colorless Gasoline-like odor  Floats on water.
<p>Keep people away. Avoid contact with liquid. Avoid inhalation. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
<b>Fire</b>	<p>Combustible. Extinguish with dry chemicals, 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>LIQUID Irritating to skin and eyes. If swallowed will cause nausea, and vomiting. 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. DO NOT INDUCE VOMITING.</p>
<b>Water Pollution</b>	<p>Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. 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

Stop discharge  
Contain  
Collection Systems: Skim  
Chemical and Physical Treatment: Burn;  
Absorb  
Clean shore line  
Salvage waterfowl

### 2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 31; Paraffin  
2.2 Formula: C<sub>9</sub>H<sub>20</sub>  
2.3 IMO/IUN Designation: 3.3/1920  
2.4 DOT ID No.: 1920  
2.5 CAS Registry No.: Currently not available  
2.6 NAERG Guide No.: 128  
2.7 Standard Industrial Trade Classification: 51114

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus for high vapor concentrations; goggles or face shield; rubber gloves.
- 3.2 **Symptoms Following Exposure:** Inhalation of concentrated vapor causes depression, irritation of respiratory tract, and pulmonary edema. Liquid can irritate eyes and (on prolonged contact) skin. Ingestion causes irritation of mouth and stomach. Aspiration causes severe lung irritation, rapidly developing pulmonary edema, and central nervous system excitement followed by depression.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim from exposure; give artificial respiration if needed. EYES: irrigate with large amounts of water for 15 min. SKIN: flush with water; wash with soap and water. INGESTION: do NOT induce vomiting; call physician. ASPIRATION: enforce bed rest; give oxygen; get medical attention.
- 3.4 TLV-TWA: 200 ppm  
3.5 TLV-STEL: Not listed.  
3.6 TLV-Ceiling: Not listed.  
3.7 Toxicity by Ingestion: Grade 0; LD<sub>50</sub> >15 g/kg  
3.8 Toxicity by Inhalation: Currently not available.  
3.9 Chronic Toxicity: Currently not available  
3.10 Vapor (Gas) Irritant Characteristics: Vapors are nonirritating to eyes and throat.  
3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin.  
3.12 Odor Threshold: Currently not available  
3.13 IDLH Value: Not listed.  
3.14 OSHA PEL-TWA: Not listed.  
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: 88°F C.C.  
4.2 Flammable Limits in Air: 0.87%-2.9%  
4.3 Fire Extinguishing Agents: Dry chemical, foam, 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: Not pertinent  
4.7 Auto Ignition Temperature: 401°F  
4.8 Electrical Hazards: Class I, Group D  
4.9 Burning Rate: 5.8 mm/min.  
4.10 Adiabatic Flame Temperature: Currently not available  
4.11 Stoichiometric Air to Fuel Ratio: 66.6 (calc.)  
4.12 Flame Temperature: Currently not available  
4.13 Combustion Molar Ratio (Reactant to Product): 19.0 (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: Currently not available  
6.2 Waterfowl Toxicity: Currently not available  
6.3 Biological Oxygen Demand (BOD): 1.1%, 1 day  
6.4 Food Chain Concentration Potential: None  
6.5 GESAMP Hazard Profile:  
Bioaccumulation: 0  
Damage to living resources: 3  
Human Oral hazard: (0)  
Human Contact hazard: 0  
Reduction of amenities: 0

### 7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Research, Pure, Technical; all 99.5+%
- 7.2 Storage Temperature: Ambient  
7.3 Inert Atmosphere: No requirement  
7.4 Venting: Open (flame arrester)  
7.5 IMO Pollution Category: (C)  
7.6 Ship Type: 3  
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: III  
8.4 Marine Pollutant: No  
8.5 NFPA Hazard Classification:  

Category	Classification
Health Hazard (Blue).....	0
Flammability (Red).....	3
Instability (Yellow).....	0
- 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: 128.3  
9.3 Boiling Point at 1 atm: 304°F = 151°C = 424°K  
9.4 Freezing Point: -64.3°F = -53.5°C = 219.7°K  
9.5 Critical Temperature: 610.5°F = 321.4°C = 594.6°K  
9.6 Critical Pressure: 335 psia = 22.8 atm = 2.31 MN/m<sup>2</sup>  
9.7 Specific Gravity: 0.718 at 20°C (liquid)  
9.8 Liquid Surface Tension: 22.9 dynes/cm = 0.0229 N/m at 20°C  
9.9 Liquid Water Interfacial Tension: (est.) 35 dynes/cm = 0.035 N/m at 20°C  
9.10 Vapor (Gas) Specific Gravity: 4.4  
9.11 Ratio of Specific Heats of Vapor (Gas): 1.042 at 16°C  
9.12 Latent Heat of Vaporization: 127 Btu/lb = 70.6 cal/g = 2.95 X 10<sup>5</sup> J/kg  
9.13 Heat of Combustion: -19,067 Btu/lb = -10,593 cal/g = -443.21 X 10<sup>6</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: 28.83 cal/g  
9.18 Limiting Value: Currently not available  
9.19 Reid Vapor Pressure: 0.2 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
0	46.820	0	0.526	0	0.973	35	0.942
10	46.530	5	0.528	10	0.964	40	0.902
20	46.230	10	0.530	20	0.954	45	0.865
30	45.940	15	0.532	30	0.945	50	0.830
40	45.640	20	0.535	40	0.935	55	0.797
50	45.350	25	0.537	50	0.925	60	0.766
60	45.050	30	0.539	60	0.916	65	0.737
70	44.760	35	0.541	70	0.906	70	0.709
80	44.470	40	0.544	80	0.897	75	0.683
90	44.170	45	0.546	90	0.887	80	0.659
100	43.880	50	0.548	100	0.877	85	0.635
110	43.580	55	0.550	110	0.868	90	0.613
120	43.290	60	0.552	120	0.858	95	0.592
130	42.990	65	0.555	130	0.849	100	0.573
140	42.700	70	0.557	140	0.839	105	0.554
150	42.400	75	0.559	150	0.830	110	0.536
160	42.110	80	0.561	160	0.820	115	0.519
170	41.810	85	0.564	170	0.810	120	0.502
		90	0.566	180	0.801		
		95	0.568	190	0.791		
		100	0.570	200	0.782		
		105	0.572				
		110	0.575				
		115	0.577				
		120	0.579				
		125	0.581				

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
	I	70	0.069	70	0.00156	0	0.350
	N	80	0.096	80	0.00212	10	0.355
	S	90	0.131	90	0.00285	20	0.361
	O	100	0.177	100	0.00378	30	0.367
	L	110	0.237	110	0.00496	40	0.373
	U	120	0.313	120	0.00646	50	0.379
	B	130	0.411	130	0.00833	60	0.384
	L	140	0.534	140	0.01064	70	0.390
	E	150	0.688	150	0.01349	80	0.396
		160	0.879	160	0.01696	90	0.402
		170	1.115	170	0.02116	100	0.408
		180	1.403	180	0.02622	110	0.414
		190	1.754	190	0.03227	120	0.419
		200	2.178	200	0.03945	130	0.425
		210	2.686	210	0.04793	140	0.431
		220	3.292	220	0.05789	150	0.437
		230	4.012	230	0.06952	160	0.443
		240	4.861	240	0.08304	170	0.449
		250	5.858	250	0.09867	180	0.454
		260	7.024	260	0.11670	190	0.460
		270	8.379	270	0.13730	200	0.466
		280	9.949	280	0.16080	210	0.472
		290	11.760	290	0.18750	220	0.478
		300	13.840	300	0.21770	230	0.483
						240	0.489
						250	0.495