

OCTANE

OAN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms n-Octane		Liquid	Colorless	Gasoline-like odor
Floats on water. Flammable, irritating vapor is produced.				
<p>Keep people away. Avoid contact with liquid. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemicals, foam or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.</p>			
Exposure	<p>Call for medical aid.</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled will cause headache, dizziness, difficult breathing, or loss of consciousness. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</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>			
Water Pollution	<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
 Chemical and Physical Treatment: Burn
 Clean shore line
 Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 31; Paraffin
 2.2 Formula: C₈H₁₈
 2.3 IMO/UN Designation: 3.2/1262
 2.4 DOT ID No.: 1262
 2.5 CAS Registry No.: 111-65-9
 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 may cause irritation of respiratory tract, depression, and pulmonary edema. Liquid can cause irritation of eyes and (on prolonged contact) irritation and cracking of 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; apply artificial respiration if breathing has stopped; call physician if needed. EYES: irrigate with copious quantities 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: 300 ppm
 3.5 TLV-STEL: 375 ppm
 3.6 TLV-Ceiling: Not listed.
 3.7 **Toxicity by Ingestion:** Currently not available
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
 3.11 **Liquid or Solid Characteristics:** Currently not available
 3.12 **Odor Threshold:** 4 ppm
 3.13 **IDLH Value:** 1,000 ppm
 3.14 **OSHA PEL-TWA:** 500 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:** 56°F C.C.
 4.2 **Flammable Limits in Air:** 1.0% 6.5%
 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:** Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back.
 4.7 **Auto Ignition Temperature:** 428°F
 4.8 **Electrical Hazards:** Class I, Group D
 4.9 **Burning Rate:** 6.3 mm/min.
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 59.5 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 17.0 (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):** Currently not available
 6.4 **Food Chain Concentration Potential:** None
 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: 0
 Damage to living resources: 3
 Human Oral hazard: (1)
 Human Contact hazard: 0
 Reduction of amenities: 0

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Research: 99.92%; Pure: 99.6%; Technical: 98.7%
 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:** II
 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:** 114.2
 9.3 **Boiling Point at 1 atm:** 258.1°F = 125.6°C = 398.9°K
 9.4 **Freezing Point:** -70.2°F = -56.8°C = 216.4°K
 9.5 **Critical Temperature:** 563.7°F = 295.4°C = 568.6°K
 9.6 **Critical Pressure:** 361 psia = 24.5 atm = 2.49 MN/m²
 9.7 **Specific Gravity:** 0.703 at 20°C (liquid)
 9.8 **Liquid Surface Tension:** 21.7 dynes/cm = 0.0217 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:** 3.9
 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.047 at 16°C
 9.12 **Latent Heat of Vaporization:** 130.4 Btu/lb = 72.5 cal/g = 3.03 X 10⁵ J/kg
 9.13 **Heat of Combustion:** -19,112 Btu/lb = -10,618 cal/g = -444.26 X 10⁵ 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:** 43.21 cal/g
 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
0	45.890	0	0.494	0	0.987	40	0.667
10	45.590	5	0.496	5	0.992	50	0.619
20	45.300	10	0.498	10	0.976	60	0.575
30	45.000	15	0.500	15	0.970	70	0.537
40	44.710	20	0.503	20	0.965	80	0.502
50	44.410	25	0.505	25	0.959	90	0.471
60	44.120	30	0.507	30	0.954	100	0.442
70	43.820	35	0.509	35	0.948	110	0.416
80	43.530	40	0.512	40	0.942	120	0.393
90	43.230	45	0.514	45	0.937	130	0.371
100	42.940	50	0.516	50	0.931	140	0.352
110	42.640	55	0.518	55	0.926	150	0.334
120	42.350	60	0.520	60	0.920	160	0.317
130	42.060	65	0.523	65	0.914	170	0.302
140	41.760	70	0.525	70	0.909	180	0.288
150	41.470	75	0.527	75	0.903	190	0.275
160	41.170	80	0.529	80	0.898	200	0.263
170	40.880	85	0.532	85	0.892	210	0.252
		90	0.534	90	0.886		
		95	0.536	95	0.881		
		100	0.538	100	0.875		
		105	0.540				
		110	0.543				
		115	0.545				
		120	0.547				
		125	0.549				

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
60	0.002	70	0.227	70	0.00456	0	0.353
		80	0.305	80	0.00600	25	0.366
		90	0.404	90	0.00783	50	0.380
		100	0.532	100	0.01011	75	0.393
		110	0.692	110	0.01293	100	0.406
		120	0.893	120	0.01639	125	0.419
		130	1.142	130	0.02061	150	0.432
		140	1.449	140	0.02571	175	0.446
		150	1.824	150	0.03183	200	0.459
		160	2.279	160	0.03913	225	0.472
		170	2.828	170	0.04777	250	0.485
		180	3.484	180	0.05795	275	0.498
		190	4.266	190	0.06986	300	0.512
		200	5.192	200	0.08372	325	0.525
		210	6.281	210	0.09977	350	0.538
		220	7.555	220	0.11830	375	0.551
		230	9.041	230	0.13950	400	0.564
		240	10.760	240	0.16360	425	0.577
		250	12.750	250	0.19110	450	0.591
		260	15.030	260	0.22220	475	0.604
						500	0.617
						525	0.630
						550	0.643
						575	0.657
						600	0.670