

N-PROPYL MERCAPTAN

PMN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms		Liquid	Colorless	Skunk-like odor
Propane-1-thiol 1-Propanethiol		Floats on water. Flammable, irritating vapor is produced.		
<p>Evacuate. Keep people away. Avoid contact with vapor. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE. POISONOUS GASES ARE PRODUCED IN FIRE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. 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 If inhaled will cause difficult breathing. 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. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected area 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.</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
Contain
Collection Systems: Skim
Chemical and Physical Treatment:
Absorb
Do not burn
Clean shore line

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: CH₃CH₂CH₂SH
2.3 IMO/UN Designation: 3.1/2704
2.4 DOT ID No.: 2402
2.5 CAS Registry No.: 107-03-9
2.6 NAERG Guide No.: 130
2.7 Standard Industrial Trade Classification: 51549

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles or face shield; rubber gloves; self-contained breathing apparatus or organic canister mask
- 3.2 **Symptoms Following Exposure:** Inhalation causes muscular weakness, convulsions, and respiratory paralysis; high concentrations may cause pulmonary irritation. Contact with liquid causes irritation of eyes and skin. Ingestion causes irritation of mouth and stomach.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim from contaminated atmosphere; give artificial respiration and oxygen if needed; observe for premonitory signs of pulmonary edema. EYES: flush with water for 15 min.; if irritation persists, see a physician. SKIN: flush with water; wash with soap and water. INGESTION: induce vomiting and follow with gastric lavage.
- 3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 **Toxicity by Ingestion:** Grade 2; oral LD₅₀ = 1,790 mg/kg (rat)
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:** 0.00075 ppm
3.13 **IDLH Value:** Currently not available
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:** 5°F O.C.
4.2 **Flammable Limits in Air:** Currently not available
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:** Toxic sulfur dioxide is generated.
4.6 **Behavior in Fire:** Not pertinent
4.7 **Auto Ignition Temperature:** Currently not available
4.8 **Electrical Hazards:** Currently not available
4.9 **Burning Rate:** 5.1 mm/min.
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 33.3 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 8.0 (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:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 98+%
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** 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)..... | 2 |
| 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:** 76.2
9.3 **Boiling Point at 1 atm:** 153°F = 67°C = 340°K
9.4 **Freezing Point:** -171°F = -113°C = 160°K
9.5 **Critical Temperature:** (est.) 495°F = 257°C = 530°K
9.6 **Critical Pressure:** (est.) 667 psia = 45.3 atm = 4.60 MN/m²
9.7 **Specific Gravity:** 0.841 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 24.7 dynes/cm = 0.0247 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** (est.) 18 dynes/cm = 0.018 N/m at 20°C
9.10 **Vapor (Gas) Specific Gravity:** 2.6
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.0984
9.12 **Latent Heat of Vaporization:** 179 Btu/lb = 99 cal/g = 4.16 X 10⁵ J/kg
9.13 **Heat of Combustion:** -15,990 Btu/lb = -8,890 cal/g = 372 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:** 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
34	53.090	52	0.446	52	1.048	46	0.459
36	53.050	54	0.447	54	1.048	48	0.453
38	53.020	56	0.448	56	1.048	50	0.447
40	52.980	58	0.449	58	1.048	52	0.441
42	52.950	60	0.451	60	1.048	54	0.435
44	52.910	62	0.452	62	1.048	56	0.430
46	52.880	64	0.453	64	1.048	58	0.424
48	52.840	66	0.454	66	1.048	60	0.419
50	52.810	68	0.455	68	1.048	62	0.414
52	52.770	70	0.456	70	1.048	64	0.409
54	52.740	72	0.457	72	1.048	66	0.404
56	52.710	74	0.458	74	1.048	68	0.399
58	52.670	76	0.459	76	1.048	70	0.394
60	52.640	78	0.461	78	1.048	72	0.389
62	52.600	80	0.462	80	1.048	74	0.385
64	52.570	82	0.463	82	1.048	76	0.380
66	52.530	84	0.464	84	1.048	78	0.376
68	52.500	86	0.465	86	1.048	80	0.372
70	52.460					82	0.367
72	52.430					84	0.363
74	52.390					86	0.359
76	52.360					88	0.355
78	52.320						
80	52.290						
82	52.250						
84	52.220						

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	35	1.050	35	0.01507	0	0.291
	N	40	1.205	40	0.01712	10	0.291
	S	45	1.379	45	0.01939	20	0.291
	O	50	1.573	50	0.02191	30	0.291
	L	55	1.791	55	0.02470	40	0.291
	U	60	2.033	60	0.02777	50	0.291
	B	65	2.303	65	0.03116	60	0.291
	L	70	2.602	70	0.03487	70	0.291
	E	75	2.934	75	0.03895	80	0.291
		80	3.300	80	0.04341	90	0.291
		85	3.704	85	0.04828	100	0.291
		90	4.149	90	0.05358	110	0.291
		95	4.638	95	0.05936	120	0.291
		100	5.174	100	0.06563	130	0.291
		105	5.761	105	0.07242	140	0.291
		110	6.402	110	0.07978	150	0.291
		115	7.102	115	0.08773	160	0.291
		120	7.864	120	0.09630	170	0.291
		125	8.693	125	0.10550	180	0.291
		130	9.593	130	0.11550	190	0.291
		135	10.570	135	0.12620	200	0.291
		140	11.620	140	0.13760	210	0.291
		145	12.760	145	0.14990	220	0.291
		150	14.000	150	0.16300	230	0.291
		155	15.320	155	0.17700	240	0.291
						250	0.291