

N-HEXALDEHYDE

HAL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Caproaldehyde Capronaldehyde Capronic aldehyde n-Caproylaldehyde Hexanal	Liquid Colorless Sharp unpleasant odor	Floats on water. Flammable, irritating vapor is produced.
<p>Keep people away. Avoid contact with liquid and vapor. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>		
Fire	Combustible. 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.	
Exposure	VAPOR Irritating to eyes, nose and throat. Harmful if inhaled. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. 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 and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.	
Water Pollution	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.	

1. CORRECTIVE RESPONSE ACTIONS

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

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
 2.2 **Formula:** CH₂(CH₂)₄CHO
 2.3 **IMO/UN Designation:** 3.3/1207
 2.4 **DOT ID No.:** 1207
 2.5 **CAS Registry No.:** 66-25-1
 2.6 **NAERG Guide No.:** 129
 2.7 **Standard Industrial Trade Classification:** 51621

3. HEALTH HAZARDS

3.1 **Personal Protective Equipment:** Goggles or face shield; rubber gloves
 3.2 **Symptoms Following Exposure:** Ingestion causes irritation of mouth and stomach. Contact with vapor or liquid irritates eyes. Liquid irritates skin.
 3.3 **Treatment of Exposure:** INGESTION: give large amount of water and induce vomiting. EYES: flush with water for at least 15 min. SKIN: wipe off; wash with soap and water.
 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 = 4,890 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:** 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:** 90°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:** Currently not available
 4.6 **Behavior in Fire:** Vapor is heavier than air and may travel to a source of ignition and flash back.
 4.7 **Auto Ignition Temperature:** Currently not available
 4.8 **Electrical Hazards:** Currently not available
 4.9 **Burning Rate:** 5.21 mm/min.
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 40.5 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 12.0 (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:** May attack some forms of plastics.
 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:** 99+%; Commercial
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Open (flame arrester)
 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:** III
 8.4 **Marine Pollutant:** No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	3
Instability (Yellow).....	1

 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:** 100
 9.3 **Boiling Point at 1 atm:** 262°F = 128°C = 401°K
 9.4 **Freezing Point:** Not pertinent
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 0.83 at 20°C (liquid)
 9.8 **Liquid Surface Tension:** Currently not available
 9.9 **Liquid Water Interfacial Tension:** Currently not available
 9.10 **Vapor (Gas) Specific Gravity:** 3.5
 9.11 **Ratio of Specific Heats of Vapor (Gas):** (est.) 1.061 at 20°
 9.12 **Latent Heat of Vaporization:** (est.) 153 Btu/lb = 85 cal/g = 3.6 X 10⁵ J/kg
 9.13 **Heat of Combustion:** (est.) -17,000 Btu/lb = -9,430 cal/g = -394 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
42	52.710	51	0.480	51	1.048		N
44	52.640	52	0.480	52	1.048		O
46	52.570	53	0.480	53	1.048		T
48	52.500	54	0.480	54	1.048		
50	52.430	55	0.480	55	1.048		P
52	52.370	56	0.480	56	1.048		E
54	52.300	57	0.480	57	1.048		R
56	52.230	58	0.480	58	1.048		T
58	52.160	59	0.480	59	1.048		I
60	52.090	60	0.480	60	1.048		N
62	52.020	61	0.480	61	1.048		E
64	51.950	62	0.480	62	1.048		N
66	51.880	63	0.480	63	1.048		T
68	51.810	64	0.480	64	1.048		
70	51.740	65	0.480	65	1.048		
72	51.670	66	0.480	66	1.048		
74	51.600	67	0.480	67	1.048		
76	51.530	68	0.480	68	1.048		
		69	0.480	69	1.048		
		70	0.480	70	1.048		
		71	0.480	71	1.048		
		72	0.480	72	1.048		
		73	0.480	73	1.048		
		74	0.480	74	1.048		
		75	0.480	75	1.048		
		76	0.480	76	1.048		

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		N		N	0	0.314
	N		O		O	20	0.323
	S		T		T	40	0.333
	O					60	0.342
	L		P		P	80	0.351
	U		E		E	100	0.360
	B		R		R	120	0.368
	L		T		T	140	0.377
	E		I		I	160	0.385
			N		N	180	0.393
			E		E	200	0.402
			N		N	220	0.409
			T		T	240	0.417
						260	0.425
						280	0.433
						300	0.440
						320	0.447
						340	0.454
						360	0.461
						380	0.468
						400	0.475
						420	0.481
						440	0.488
						460	0.494
						480	0.500
						500	0.506