

CHLORDANE

CDN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Chlordan 1,2,4,5,6,7,8,8-Octachloro- 2,3,3a,4,7,7a-hexahydro-4,7- methanoindene Octa-klor Toxiclor Velsicol 1068	Liquid Brown Sharp odor Sinks in water.
<p>KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Not flammable but solution may be combustible. POISONOUS GASES MAY BE PRODUCED IN FIRE. Extinguish with dry chemicals, foam or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.
Exposure	CALL FOR MEDICAL AID. LIQUID OR SOLUTION POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Irritating to skin and eyes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. DO NOT RUB AFFECTED AREAS. 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	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. 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 Do not burn</p>	<p>2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: Not listed. 2.2 Formula: C₁₀H₆Cl₈ 2.3 IMO/UN Designation: 6.1/2762 2.4 DOT ID No.: 2902 2.5 CAS Registry No.: 57-74-9 2.6 NAERG Guide No.: 151 2.7 Standard Industrial Trade Classification: 59110</p>
<p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: Respirator for sprays, fogs, or dust; goggles; rubber gloves. 3.2 Symptoms Following Exposure: Moderately irritating to eyes and skin. Ingestion, absorption through skin, or inhalation of mist or dust may cause excitability, convulsions, nausea, vomiting, diarrhea, and some local irritation of the gastrointestinal tract. 3.3 Treatment of Exposure: INHALATION: administer oxygen and give fluid therapy; do not give epinephrine, since it may induce ventricular fibrillation; enforce complete rest. EYES: flush with water for at least 15 min. SKIN: wash off skin with adequate quantities of soap and water; do NOT scrub. INGESTION: induce vomiting and follow with gastric lavage and administration of saline cathartics; ether and barbiturates may be used to control convulsions; oxygen and fluid therapy are also recommended; do NOT give epinephrine. Since no specific antidotes are known, symptomatic therapy must be accompanied by complete rest. 3.4 TLV-TWA: 0.5 mg/m³ (skin) 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 3; oral LD₅₀ = 283 mg/kg (rat) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Possible liver damage; loss of appetite and weight. 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: 100 mg/m³ 3.14 OSHA PEL-TWA: 0.5 mg/m³ 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:**
Solution: 225°F O.C.; 132°F C.C. Solid is not flammable.
- 4.2 **Flammable Limits in Air:** 0.7%-5% (kerosene solution)
- 4.3 **Fire Extinguishing Agents:** Dry chemical, foam, carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective on solution fire.
- 4.5 **Special Hazards of Combustion Products:** Irritating and toxic hydrogen chloride and phosgene gases may be formed when kerosene solution of compound burns.
- 4.6 **Behavior in Fire:** Not pertinent
- 4.7 **Auto Ignition Temperature:** 410°F (kerosene solvent)
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Not pertinent
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not Pertinent
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Not Pertinent
- 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 to 160°F
- 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:**
0.5 ppm/96 hr/goldfish/TL₅₀/fresh water
- 6.2 **Waterfowl Toxicity:** LD₅₀ = 1,200 mg/kg
- 6.3 **Biological Oxygen Demand (BOD):**
Currently not available
- 6.4 **Food Chain Concentration Potential:**
High
- 6.5 **GESAMP Hazard Profile:**
Bioaccumulation: +
Damage to living resources: 4
Human Oral hazard: 3
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical. A variety of dusts, powders, and solutions in kerosene containing 2-80% chlordane are shipped.
- 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:** Keep Away From Food
- 8.2 **49 CFR Class:** 6.1
- 8.3 **49 CFR Package Group:** III
- 8.4 **Marine Pollutant:** Yes
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** 1 pound
- 8.7 **EPA Pollution Category:** X
- 8.8 **RCRA Waste Number:** U036
- 8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 409.8
- 9.3 **Boiling Point at 1 atm:** Decomposes
- 9.4 **Freezing Point:** Not pertinent
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 1.6 at 25°C (liquid)
- 9.8 **Liquid Surface Tension:** (est.) 25 dynes/cm = 0.025 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** (est.) 50 dynes/cm = 0.05 N/m at 20°C
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 9.11 **Ratio of Specific Heats of Vapor (Gas):**
Not pertinent
- 9.12 **Latent Heat of Vaporization:** Not pertinent
- 9.13 **Heat of Combustion:** (est.) -4,000 Btu/lb = -2,200 cal/g = -93 X 10³ 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 *Properties refer to undiluted, technical-grade chlordane.

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
52	100.400	60	0.300	60	1.209	130	58.980
54	100.400	61	0.300	61	1.209	140	51.140
56	100.299	62	0.300	62	1.209	150	44.560
58	100.200	63	0.300	63	1.209	160	38.990
60	100.200	64	0.300	64	1.209	170	34.270
62	100.099	65	0.300	65	1.209	180	30.240
64	100.000	66	0.300	66	1.209	190	26.780
66	99.940	67	0.300	67	1.209	200	23.810
68	99.879	68	0.300	68	1.209	210	21.240
70	99.809	69	0.300	69	1.209	220	19.020
72	99.740	70	0.300	70	1.209	230	17.080
74	99.669	71	0.300	71	1.209	240	15.390
76	99.599	72	0.300	72	1.209	250	13.900
78	99.530	73	0.300	73	1.209	260	12.590
80	99.459	74	0.300	74	1.209	270	11.440
82	99.389	75	0.300	75	1.209	280	10.420
84	99.320	76	0.300	76	1.209	290	9.516
86	99.250	77	0.300	77	1.209	300	8.710

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	215	0.000	215	0.00001		N
	N	220	0.000	220	0.00001		O
	S	225	0.000	225	0.00002		T
	O	230	0.000	230	0.00002		
	L	235	0.001	235	0.00003		P
	U	240	0.001	240	0.00005		E
	B	245	0.001	245	0.00007		R
	L	250	0.002	250	0.00009		T
	E	255	0.002	255	0.00012		I
		260	0.003	260	0.00017		N
		265	0.004	265	0.00023		E
		270	0.006	270	0.00031		N
		275	0.008	275	0.00042		T
		280	0.011	280	0.00056		
		285	0.015	285	0.00074		
		290	0.019	290	0.00099		
		295	0.026	295	0.00131		
		300	0.035	300	0.00174		
		305	0.046	305	0.00228		
		310	0.060	310	0.00300		
		315	0.079	315	0.00391		
		320	0.104	320	0.00510		
		325	0.136	325	0.00662		
		330	0.177	330	0.00856		
		335	0.230	335	0.01104		
		340	0.297	340	0.01418		