# ENDRIN

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## CAUTIONARY RESPONSE INFORMATION

| Common Synonyms | Solid or solution | Colorless to tan | Odorless |
|---|---|---|---|
| Hexadrin<br>Mendrin | Sinks in water. | | |

KEEP PEOPLE AWAY.
Avoid inhalation.
AVOID CONTACT WITH LIQUID, SOLID AND DUST.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

**Fire**

Combustible solution or non-flammable solid.
POISONOUS GASES ARE PRODUCED IN FIRE.
Extinguish with dry chemicals, foam or carbon dioxide.
Water may be ineffective on fire.

**Exposure**

CALL FOR MEDICAL AID.
DUST
POISONOUS IF INHALED OR IF SKIN IS EXPOSED.
Irritating to eyes, nose and throat.
Move victim to fresh air.
If in eyes, hold eyelids open and flush with plenty of water.
If breathing is difficult, give oxygen.

LIQUID OR SOLID
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.
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.

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Skim; Dredge
Do not burn

### 2. CHEMICAL DESIGNATIONS

**2.1 CG Compatibility Group:** Not listed.
**2.2 Formula:** $C_{12}H_8Cl_6O$
**2.3 IMO/UN Designation:** 6.1/2761
**2.4 DOT ID No.:** 2761
**2.5 CAS Registry No.:** 72-20-8
**2.6 NAERG Guide No.:** 151
**2.7 Standard Industrial Trade Classification:** 59110

### 3. HEALTH HAZARDS

**3.1 Personal Protective Equipment:** Respirator for spray, fog, or dust; rubber gloves and boots.
**3.2 Symptoms Following Exposure:** Inhalation causes moderate irritation of nose and throat; prolonged breathing may cause same toxic symptoms as for ingestion. Contact with liquid causes moderate irritation of eyes and skin. Prolonged contact with skin may cause same toxic symptoms as for ingestion. Ingestion causes frothing of the mouth, facial congestion, convulsions, violent muscular contractions, dizziness, weakness, nausea.
**3.3 Treatment of Exposure:** Get medical attention after all exposures to this compound. INHALATION: remove from exposure. EYES: flush with water for at least 15 min. SKIN: wash with plenty of soap and water, but do not scrub. INGESTION: remove from the gastrointestinal tract, either by inducing vomiting (unless hydrocarbon solvents are involved and the amount of insecticide is well below the toxic amount) or by gastric lavage with saline solution; saline cathartics may also be beneficial; fats and oils should be avoided; sedation with barbituates is indicated if signs of CNS irritation are present; patient should have absolute quiet, expert nursing care, and a minimum of external stimuli to reduce danger of convulsions; epinephrine is con- traindicated in view of the danger of precipitating ventricular fibrillation; if material ingested was dissolved in a hydrocarbon solvent, observe patient for possible development of hydrocarbon pneumonitis.
**3.4 TLV-TWA:** 0.1 mg/m$^3$
**3.5 TLV-STEL:** Not listed.
**3.6 TLV-Ceiling:** Not listed.
**3.7 Toxicity by Ingestion:** Grade 4; oral $LD_{50}$ = 3 mg/kg (rat)
**3.8 Toxicity by Inhalation:** Currently not available.
**3.9 Chronic Toxicity:** None known
**3.10 Vapor (Gas) Irritant Characteristics:** Currently not available
**3.11 Liquid or Solid Characteristics:** Currently not available
**3.12 Odor Threshold:** Odorless
**3.13 IDLH Value:** 2 mg/m$^3$
**3.14 OSHA PEL-TWA:** 0.1 mg/m$^3$
**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:** Non flammable solid or combustible solution > 80°F O.C. (xylene)
**4.2 Flammable Limits in Air:** 1.1%-7% (xylene)
**4.3 Fire Extinguishing Agents:** (Solution) 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:** Toxic hydrogen chloride and phosgene may be generated when solution burns.
**4.6 Behavior in Fire:** Not pertinent
**4.7 Auto Ignition Temperature:** Not pertinent
**4.8 Electrical Hazards:** Not pertinent
**4.9 Burning Rate:** 4 mm/min. (xylene)
**4.10 Adiabatic Flame Temperature:** Currently not available
**4.11 Stoichometric 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
**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:** 0.005 ppm/48 hr/carp/$TL_m$/fresh water
0.0025 ppm/48 hr/brown shrimp/$TL_m$/salt water
**6.2 Waterfowl Toxicity:** $LD_{50}$ = 5.64 mg/kg
**6.3 Biological Oxygen Demand (BOD):** Currently not available
**6.4 Food Chain Concentration Potential:** Probable
**6.5 GESAMP Hazard Profile:**
**Bioaccumulation:** +
**Damage to living resources:** 4
**Human Oral hazard:** 4
**Human Contact hazard:** II
**Reduction of amenities:** XXX

### 7. SHIPPING INFORMATION

**7.1 Grades of Purity:** Technical, 95-98%; Dry formulations, up to 75% endrin; liquid formulations, up to 25% in flammable xylene
**7.2 Storage Temperature:** Ambient
**7.3 Inert Atmosphere:** No requirement
**7.4 Venting:** Open
**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:** Poison
**8.2 49 CFR Class:** 6.1
**8.3 49 CFR Package Group:** I
**8.4 Marine Pollutant:** Yes
**8.5 NFPA Hazard Classification:**

| Category | Classification | |
|---|---|---|
| Health Hazard (Blue)..... | 3 | 2 |
| Flammability (Red)..... | 1 | 0 |
| Instability (Yellow)..... | 0 | 0 |

**8.6 EPA Reportable Quantity:** 1 pound
**8.7 EPA Pollution Category:** X
**8.8 RCRA Waste Number:** P051/D012
**8.9 EPA FWPCA List:** Yes

### 9. PHYSICAL & CHEMICAL PROPERTIES

**9.1 Physical State at 15° C and 1 atm:** Solid
**9.2 Molecular Weight:** 380.92
**9.3 Boiling Point at 1 atm:** Not pertinent
**9.4 Freezing Point:** 392°F = 200°C = 573°K
**9.5 Critical Temperature:** Not pertinent
**9.6 Critical Pressure:** Not pertinent
**9.7 Specific Gravity:** 1.65 at 25°C (solid)
**9.8 Liquid Surface Tension:** Not pertinent
**9.9 Liquid Water Interfacial Tension:** Not pertinent
**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:** Not pertinent
**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 |
| | NOT PERTINENT | | NOT PERTINENT | | NOT PERTINENT | | NOT PERTINENT |

| 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 |
| | INSOLUBLE | | NOT PERTINENT | | NOT PERTINENT | | NOT PERTINENT |