

## DIELDRIN

(C<sub>12</sub>H<sub>8</sub>Cl<sub>16</sub>) CAS # 309-00-2 (Pesticide)

**Synonyms include Aldrec, Aldrex, Seedrin, Octalene, and 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-exo-dimethanonaphthalene**

### SOURCE/USE

Dieldrin was first synthesized in the U.S. in 1948. It has not been produced in the U.S. since 1974. It was used to control pests of corn and citrus crops. Past uses also included general crop protection and timber preservation. Dieldrin is expected to be one of the more toxicologically important air contaminants found during remediation projects.

### ROUTES OF EXPOSURE

Although the risk of off-post acute exposure to dieldrin as a result of remediation at the Rocky Mountain Arsenal is very small, any such exposure would very likely be via inhalation. The concentrations resulting in acute clinical effects discussed in this document reflect occupational exposures or animal testing and are much higher than those likely to be encountered at the fence line during remediation at the Rocky Mountain Arsenal. The odor of dieldrin may provide warning of acutely hazardous concentrations. Dieldrin vapor is heavier than air and may cause asphyxiation in enclosed, poorly ventilated, or low-lying areas. Other routes of exposure include dermal/ocular contact and ingestion.

APPLICABLE STANDARDS AND LIMITS	
ATSDR MRL	Not Available
OSHA PEL	250 ug/m <sup>3</sup>
Odor threshold	Not Available
RMA acute fence line criteria	ARC - 0.51 µg/m <sup>3</sup> MARC - 5.1 µg/m <sup>3</sup>
RMA chronic fence line criteria	Cancer - 0.00059 µg/m <sup>3</sup> Noncancer - 0.18 µg/m <sup>3</sup>

The goal of the remediation is exposure prevention through remedial design, environmental monitoring, and modeling. Failure of prevention could result in acute and/or chronic exposures. Following is an overview of the types of health effects associated with dieldrin exposure.

#### **ACUTE HEALTH EFFECTS**

CNS excitation, myoclonic jerking, and recurrent convulsions may occur from exposure to dieldrin.

No conclusive information regarding respiratory effects from dieldrin was located.

Massive doses of dieldrin can cause cardiac abnormalities. Rise in blood pressure, tachycardia, arrhythmias, and fever are reported.

Dermal effects in humans are reported from extensive contact to organochlorines. Dermatitis is unusual with this compound. Minor erythema may occur.

No studies were located regarding ocular effects in humans after inhalation exposure to dieldrin.

No studies were located regarding gastrointestinal effects in humans after inhalation exposure to dieldrin.

#### **CHRONIC HEALTH EFFECTS**

Dieldrin is a carcinogen causing increases in a variety of tumors in rats. It also produces increased incidence of liver tumors in mice. Dieldrin is classified as a probable human carcinogen by the EPA.

Dieldrin is toxic to the reproductive system and teratogenic. Accumulation of dieldrin in amniotic fluid and in the developing fetus are reported. Reproductive effects include decreased fertility, increased fetal death, and effects on gestation. Teratogenic effects include cleft palate, webbed foot, and skeletal anomalies. Chronic effects attributed to dieldrin include liver and central nervous system toxicity.

Symptoms of chronic occupational exposure include headache, nausea, dizziness, fainting, general malaise, muscle spasms, tremors, and in severe cases epileptiform convulsions.