

7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines pertaining to mirex and chlordecone in air, water, and food are summarized in Tables 7-1 and 7-2, respectively.

ATSDR has derived an acute oral minimal risk level (MRL) of 0.01 mg/kg/day for chlordecone based on a NOAEL of 1.25 mg/kg for neurological effects (increased startle response) in Fischer 344 rats in a 10-day study conducted by EPA (1986c).

An MRL of 0.0005 mg/kg/day has been derived for intermediate-duration oral exposure to chlordecone based on a NOAEL of 0.05 mg/kg/day for renal effects in rats at a LOAEL of 0.25 mg/kg/day in a study by Larson et al. (1979b).

An MRL of 0.0008 mg/kg/day has been derived for chronic-duration oral exposure to mirex based on a NOAEL of 0.075 mg/kg/day for dose-dependent hepatic changes from a study by NTP (1990).

An MRL of 0.0005 mg/kg/day has been derived for chronic-duration oral exposure to chlordecone based on a NOAEL of 0.05 mg/kg/day for renal effects in rats at a LOAEL of 0.25 mg/kg/day in a study by Larson et al. (1979b).

The EPA has derived an oral reference dose (RfD) of 2.00×10^{-4} mg/kg/day for mirex (IRIS 1994). The RfD is based on liver cytomegaly, fatty metamorphosis, angiectasis, and thyroid toxicity in rats (NTP 1990). No reference concentration is available for mirex. Neither a reference dose nor a reference concentration exist for chlordecone.

Mirex is regulated by the Clean Water Effluent Guidelines as stated in Title 40, Sections 400-475, of the Code of Federal Regulations. Mirex has a specific effluent limitation for the pesticide chemicals point source category (EPA 1978f). No effluent guidelines exist for chlordecone.

EPA canceled the registration of mirex in 1976 (EPA 1976).

The Food and Drug Administration set an action level of 0.1 ppm mirex in fish tissue (EPA 1978a).

7. REGULATIONS AND ADVISORIES

Under the Resource Conservation and Recovery Act (RCRA), chlordane is listed as a hazardous waste when it is a discarded commercial chemical product off-specification species, container residue, and spill residue thereof (EPA 1980b).

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Mirex

Agency	Description	Information	References
<u>INTERNATIONAL</u>			
IARC	Carcinogenic classification	Group 2B ^a	IARC 1987
<u>NATIONAL</u>			
Regulations:			
a. Water			
EPA OWRS	Pesticides regulated by PSES, NSPS, and PSNS when formulated and packaged	Yes	40 CFR 455 EPA 1985b EPA 1985c EPA 1978e
	Priority pollutant effluent limitations for BPT (mirex):		40 CFR 455 EPA 1985b EPA 1978e
	Maximum for any 1 day	0.010 kg/1000 kg ^b	
	Monthly average shall not exceed	0.0018 kg/1000 kg ^b	
	Identification of Test	Yes	40 CFR 136.3 EPA 1973
	Procedures, Table 1C		40 CFR 125.58 EPA 1982c
b. Food			
FDA	FDA action level Fish	0.1 ppm	43 FR 14736 EPA 1978a
c. Other:			
EPA OPTS	Registration cancelled	Yes	41 FR 56703 EPA 1976b
	Environmental Effects Testing Guidelines - Fish Bioconcentration Test	Yes	40 CFR 797.1520 EPA 1985d
Guidelines:			
a. Water:			
EPA	Ambient water quality criteria for aquatic organisms		IRIS 1994
	Freshwater	1.0x10 ⁻³ µg/L	
	Marine	1.0x10 ⁻³ µg/L	
b. Other:			
EPA	RfD (oral)	2.00x10 ⁻⁴ mg/kg/day	IRIS 1994

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Mirex (continued)

Agency	Description	Information	References
STATE			
Regulations and Guidelines:			
a. Air:	Average acceptable ambient air concentrations		NATICH 1992
NY	1 year	$3.00 \times 10^{-2} \mu\text{g}/\text{m}^3$	
PA-Phil	1 year	$8.80 \times 10^{-1} \mu\text{g}/\text{m}^3$	
SC	24 hours	$4.50 \times 10^{-3} \mu\text{g}/\text{m}^3$	
KY	Significant emission levels of toxic air pollutants	5.10×10^{-7} pounds/hour	401 KAR 63:022 NREPC 1986
b. Water:			
	Water Quality Criteria: Human Health		CELDs 1994
NY	Human health	not detectable	
	Water Quality Criteria: Aquatic Life		CELDs 1994
CO	Aquatic life segments	0,001 $\mu\text{g}/\text{L}$	
HI	Freshwater, chronic Saltwater, chronic	0.001 $\mu\text{g}/\text{L}$ 0.001 $\mu\text{g}/\text{L}$	
MO	Aquatic life	0.001 $\mu\text{g}/\text{L}$	
NC	Aquatic life	0.001 $\mu\text{g}/\text{L}$	
NV	Aquatic use	<0.000001 mg/L	
NY	Aquatic use	0.001 $\mu\text{g}/\text{L}$	
OH	Coldwater	0.001 $\mu\text{g}/\text{L}$	
OK	Aquatic life, chronic	0.001 $\mu\text{g}/\text{L}$	
OR	Freshwater, chronic	0.001 $\mu\text{g}/\text{L}$	
PR	Coastal estuarine waters Surface waters Ground waters	0.001 $\mu\text{g}/\text{L}$ 0.001 $\mu\text{g}/\text{L}$ 0.001 $\mu\text{g}/\text{L}$	
TX	Chronic	0.001 $\mu\text{g}/\text{L}$	
UT	Aquatic wild life	0.001 $\mu\text{g}/\text{L}$	
VA	Aquatic life	zero	
	Water Quality Criteria: Agricultural Uses		CELDs 1994
NV	Irrigator uses Watering of livestock	0 mg/L 0.000001 mg/L	
	Groundwater Quality Standards		CELDs 1994
NY	Groundwater effluent standard	Not detectable	
VA		yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Mirex (continued)

Agency	Description	Information	References
<u>STATE</u> (Cont.)			
c. Other			
	Hazardous Waste Constituents		CELDs 1994
CA	Total threshold limit concentration	2,100 mg/kg	
	Restricted Pesticides		CELDs 1994
FL	Class II Waters	0.001 µg/L	
HI			

^aGroup 2B = A Possible Human Carcinogen

^bEPA limits a facility's effluent to contain the designated kilograms of the sum of all organic pesticide active ingredients (listed in 40 CFR 455.20(b) which includes mirex) per 1000 kg of the sum of all active ingredients manufactured at the facility.

BPT = Best Practicable (Control) Technology; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; FSIS = Food Safety Inspection Service; IARC = International Agency for Research on Cancer; NSPS = New Source Performance Standards; OWRS = Office of Water Regulations and Standards; PSES = Pretreatment Standards for Existing Sources; PSNS = Pretreatment Standards for New Sources; RfD = Reference Dose; u.f. = Uncertainty Factor

7. REGULATIONS AND ADVISORIES

TABLE 7-2. Regulations and Guidelines Applicable to Chlordecone

Agency	Description	Information	References
<u>INTERNATIONAL</u>			
IARC	Carcinogenic classification	Group 2B ^a	IARC 1987
<u>NATIONAL</u>			
Regulations:			
a. Food			
FDA	FDA action level	0.3 ppm	EPA 1978c
	Oysters, clams, mussels	0.4 ppm	EPA 1978c
	Crabs	0.3 ppm	EPA 1986a
	Fin fish		
b. Other			
EPA OERR	Reportable quantity	1 pound (0.454 kg) ^p	40 CFR 117 EPA 1986b
	App. B - National Priorities List	Yes	40 CFR 300 EPA 1992
	Reportable Quantity	1 lb.	40 CFR 302.4 EPA 1989c
EPA OW	Designation of Hazardous Substances	Yes	40 CFR 116.4 EPA 1978b
	NPDES Form 2D	Yes	40 CFR 122 EPA 1983
	App. D - NPDES Permit Application Testing Requirements	Yes	40 CFR 122 EPA 1983
	NPDES - Instructions - Form 2C		40 CFR 125 EPA 1980a
EPA OSW	App. II - Municipal Solid Waste - List of Hazardous Inorganic and Organic Constituents	20 µg/L (Practical Quantitation Limit)	40 CFR 258 EPA 1991
	Listing as a Hazardous Waste: Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residues Thereof	Yes	40 CFR 261.33 EPA 1980b EPA 1980c
	App. VIII - Listing as a hazardous waste constituent	Yes	40 CFR 261 EPA 1981a EPA 1988a
	App. IX - Groundwater monitoring requirement	Yes	40 CFR 261 EPA 1987a EPA 1987c
	LDR - Identification of Wastes to be Evaluated by June 8, 1989	Yes	40 CFR 268.11 EPA 1986d
	LDR - Treatment Standards Expressed as Waste Concentrations	0.0011 mg/L (ww) 0.13 mg/kg (nonww)	40 CFR 268.43 EPA 1988c

7. REGULATIONS AND ADVISORIES

TABLE 7-2. Regulations and Guidelines Applicable to Chlordecone (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
	App. III - LDR - List of Halogenated Organic Compounds Regulated Under 40 CFR 268.32	Yes	40 CFR 268 EPA 1987d
Guidelines:			
a. Air:			
NIOSH	REL TWA	Ca ²⁺ ; 0.001 mg/m ³	NIOSH 1992
<u>STATE</u>			
Regulations and Guidelines:			
a. Air:			
	Average acceptable ambient air concentrations		NATICH 1992
NY	1 year	3.00x10 ⁻² µg/m ³	
PA-Phil	1 year	8.80x10 ⁻¹ µg/m ³	
TX	30 minutes	1.00x10 ⁻² µg/m ³	
	1 year	1.00x10 ⁻³ µg/m ³	
KY	Significant emission levels of toxic air pollutants	5.10x10 ⁻⁷ pounds/hour	401 KAR 63:022 NREPC 1986
b. Water:			
	Water Quality Criteria: Human Health		CELDs 1994
NY	Human health	not detectable	
	Water Quality Criteria: Aquatic Life		CELDs 1994
VA	Aquatic life	zero	
	Groundwater Quality Standards		CELDs 1994
NY	Groundwater effluent standard	Not detectable	
VA		yes	
	Groundwater Quality Monitoring Parameters		CELDs 1994
AL		yes	
CA		yes	
CO		yes	
IL		yes	
KY		yes	
LA		yes	
MN		yes	
NY		yes	
SC		yes	
TN		yes	
VA		yes	
WI		yes	
WV		yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-2. Regulations and Guidelines Applicable to Chlordecone (continued)

Agency	Description	Information	References
<u>STATE</u> (Cont.)			
c. Other			
	Hazardous Waste Constituents		CELDs 1994
AL		yes	
CA	Total threshold limit concentration	2,100 mg/kg	
CO		yes	
IL		yes	
KY		yes	
LA		yes	
MA		yes	
MD		yes	
ME		yes	
MN		yes	
MT		yes	
ND		yes	
NE		yes	
NH		yes	
NJ		yes	
OH		yes	
SC		yes	
SD		yes	
VA		yes	
VT		yes	
WI		yes	
WV		yes	
WY		yes	

^aGroup 2B = A Possible Human Carcinogen.

^bIndicates that the reportable quantity is subject to change when the assessment of potential carcinogenicity and/or chronic toxicity is completed.

^cAgent recommended by NIOSH to be treated as a potential occupational carcinogen.

EPA = Environmental Protection Agency; FDA = Food and Drug Administration; IARC = International Agency for Research on Cancer; LDR = Land Disposal Restrictions; NIOSH = National Institute for Occupational Safety and Health; OERR = Office of Emergency and Remedial Response; OSW = Office of Solid Wastes; REL = Recommended Exposure Limit; TWA = Time-Weighted Average; ww = wastewater; nonww = non-wastewater