

## 7. REGULATIONS AND ADVISORIES

Because of its potential to cause adverse health effects in exposed people, a number of regulations and guidelines have been established for hexachlorobutadiene by various international, federal, and state agencies. These values are summarized in Table 7-1.

The ATSDR has calculated an intermediate-duration exposure oral MRL of 0.0002 mg/kg/day, based on a LOAEL of 0.2 mg/kg/day for the presence of kidney damage in female mice (NTP 1991).

The EPA has derived a chronic oral RfD of  $2 \times 10^{-4}$  mg/kg/day for hexachlorobutadiene (EPA 1993). This RfD is based on a LOAEL of 0.5 mg/kg/day for renal effects in mice exposed via the diet for 13 weeks (Yang et al. 1989). Since this RfD is currently under review by EPA and has been withdrawn from EPA's Integrated Risk Information System (IRIS 1993), it is subject to change.

## 7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Hexachlorobutadiene

Agency	Description	Information	References
<b><u>INTERNATIONAL</u></b>			
IARC	Carcinogenic classification	Group 3 <sup>a</sup>	IARC 1987
<b><u>NATIONAL</u></b>			
Regulations:			
a. Air:			
OSHA	PEL TWA	0.02 ppm (0.24 mg/m <sup>3</sup> ) <sup>b</sup>	OSHA 1989 (29 CFR 1910.1000)
EPA OAQPS	Hazardous Air Pollutant	Yes	Public Law 101-549, Section 112
b. Water:			
EPA ODW	Monitoring requirements for unregulated contaminants	Yes	40 CFR 141
EPA OWRS	General permits under NPDES	Yes	40 CFR 122
	General Pretreatment Regulations for Existing and New Sources of Pollution	Yes	40 CFR 403
c. Other:			
EPA OERR	Reportable quantity	1 lb.	EPA 1989b (40 CFR 302.4)
EPA OSW	Hazardous Waste Constituent (Appendix VIII)	Yes	EPA 1980 (40 CFR 261)
	Residue Concentration Limit from Burning Hazardous Waste in Boilers and Industrial Furnaces	5x10 <sup>-3</sup> mg/kg	EPA 1991 (40 CFR 266.122)
	Groundwater Monitoring List (Appendix IX)	Yes	EPA 1987b (40 CFR 264)
	Land Disposal Restrictions	Yes	EPA 1990d (40 CFR 268)
EPA OTS	Toxic Chemical Release Reporting Rule	Yes	EPA 1988a (40 CFR 372)
	Health and Safety Data Reporting Rule	Yes	EPA 1988b (40 CFR 716.120)
	Preliminary Assessment Information Reporting Rule	Yes	EPA 1982b (40 CFR 712.30)

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

Agency	Description	Information	References
<b>Guidelines:</b>			
<b>a. Air:</b>			
ACGIH	TLV TWA	0.02 ppm (0.21 mg/m <sup>3</sup> ) Suspected occupational Carcinogen (skin)	ACGIH 1991
NIOSH	REL, TWA	0.02 ppm (0.24 mg/m <sup>3</sup> ) (skin)	NIOSH 1992
<b>b. Water:</b>			
EPA ODW	Health Advisories		EPA 1989b
	One-day (child)	0.3 mg/L	
	Ten-day (child)	0.3 mg/L	
	Longer-term (child)	0.1 mg/L	
	Longer-term (adult)	0.4 mg/L	
	Lifetime (adult)	0.001 mg/L	
EPA OWRS	Ambient Water Quality Criteria	0.45 µg/L	EPA 1980
	Ingesting water and organisms:		
	Ingesting organisms only:	50 µg/L	
<b>c. Other:</b>			
EPA	RfD		EPA 1993
	(oral)	2x10 <sup>-4</sup> mg/kg/day <sup>c</sup>	
	Carcinogenic Classification	Group C <sup>d</sup>	IRIS 1993
	Cancer slope factor (q <sub>1</sub> <sup>*</sup> )		
	q <sub>1</sub> <sup>*</sup> (oral)	7.8x10 <sup>-2</sup> (mg/kg/day) <sup>-1</sup>	
	q <sub>1</sub> <sup>*</sup> (inhalation)	7.8x10 <sup>-2</sup> (mg/kg/day) <sup>-1</sup>	
<b>STATE</b>			
<b>Regulations and Guidelines:</b>			
<b>a. Air:</b>			
	Acceptable ambient air concentrations		NATICH 1991
Connecticut		2.4 µg/m <sup>3</sup> (8 hour)	
Kansas		0.0455 µg/m <sup>3</sup> (1 year)	
Nevada		6 µg/m <sup>3</sup> (8 hour)	
New York		0.8 µg/m <sup>3</sup> (1 year)	
Oklahoma		0.00	
South Carolina		1.20 µg/m <sup>3</sup> (24 hour)	
Texas		2.10 µg/m <sup>3</sup> (30 minutes)	
		0.210 µg/m <sup>3</sup> (annual)	
Vermont		0.045 µg/m <sup>3</sup> (annual)	
Virginia		2.10 µg/m <sup>3</sup> (24 hour)	

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

Agency	Description	Information	References
b. Water: Kansas Minnesota	Drinking water quality standards	4.5 µg/L 1.4 µg/L	FSTRAC 1990

<sup>a</sup> Group 3: Not classifiable as to its carcinogenicity in humans.

<sup>b</sup> Due to a federal court decision, not enforceable as of 03/22/93 (Hanson 1993). There is no currently federally enforceable PEL for hexachlorobutadiene (EPA 1993 35338).

<sup>c</sup> Oral RfD withdrawn from IRIS on 05/01/93 as a result of further review. A new RfD summary is in preparation.

<sup>d</sup> Group C: possible human carcinogen.

ACGIH = American Conference of Governmental Industrial Hygienists; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NPDES = National Pollutant Discharge Elimination System; OAQPS = Office of Air Quality Planning and Standards; ODW = Office of Drinking Water; OERR = Office of Emergency and Remedial Response; OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Waste; OTS = Office of Toxic Substances; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limit; RfD = Reference Dose; TLV = Threshold Limit Value; TWA = Time-Weighted Average