

8. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding 1,1,1-trichloroethane in air, water, and other media are summarized in Table 8-1.

ATSDR has derived an MRL of 2 ppm for acute-duration inhalation exposure (14 days or less) to 1,1,1-trichloroethane, based on a LOAEL of 175 ppm for reduced performance of psychomotor tests in human volunteers in a study by Mackay et al. (1987).

ATSDR has derived an MRL of 0.7 ppm for intermediate-duration inhalation exposure to 1,1,1-trichloroethane based on a study by Rosengren et al. (1985), which found evidence of astrogliosis (increased glial fibrillary acid protein levels) in the brains of gerbils exposed to 210 or 1,000 ppm, but not 70 ppm, of 1,1,1-trichloroethane continuously for 3 months.

ATSDR has derived an MRL of 20 mg/kg/day for intermediate-duration oral exposure to 1,1,1-trichloroethane based on the results of benchmark dose (BMD) modeling of final body weight of mice fed 1,1,1-trichloroethane in the daily diet for 13 weeks (NTP 2000).

The EPA does not list a reference concentration or a reference dose for 1,1,1-trichloroethane on the Integrated Risk Information System (IRIS 2005). The EPA has classified 1,1,1-trichloroethane as group D, not classifiable as to human carcinogenicity, based on no reported human data and inadequate animal data (IRIS 2005).

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Table 8-1. Regulations and Guidelines Applicable to 1,1,1-Trichloroethane

Agency	Description	Information	Reference
<u>INTERNATIONAL</u>			
Guidelines:			
IARC	Carcinogenicity classification	Group 3 ^a	IARC 1999
WHO	Air quality guideline	No data	WHO 2000
	Drinking water guideline	Guideline not established ^b	WHO 2004
<u>NATIONAL</u>			
Regulations and Guidelines:			
a. Air			
ACGIH	TLV (8-hour TWA)	350 ppm	ACGIH 2003
	STEL	450 ppm	
EPA	Class I controlled substance for the protection of stratospheric ozone	Yes	EPA 2004a 40CFR82, Subpart A, Appendix A
	Hazardous air pollutant		EPA 2004f 42USC7412
NIOSH	REL (15-minute ceiling TWA) ^c	350 ppm	NIOSH 2004
OSHA	IDLH	700 ppm	
	PEL (8-hour TWA) for general industry	350 ppm	OSHA 2004c 29CFR1910.1000, Table Z-1
	PEL (8-hour TWA) for construction industry	350 ppm	OSHA 2004a 29CFR1926.55, Appendix A
	PEL (8-hour TWA) for shipyard industry	350 ppm	OSHA 2004b 29CFR1915.1000, Table Z
b. Water			
EPA	Drinking water standard	0.2 ppm (mg/L)	EPA 2004b 40CFR141.32
	Drinking water standards and health advisories		EPA 2004I
	1-Day HA for a 10-kg child	100 mg/L	
	10-Day HA for a 10-kg child	40 mg/L	
	DWEL	1 mg/L	
	Lifetime HA (70-kg adult)	0.2 mg/L	
	MCL	0.2 mg/L	EPA 2004c 40CFR141.61
MCLG	0.2 mg/L	EPA 2004d 40CFR141.50	
FDA	Bottled water	0.2 mg/L	FDA 2003a 21CFR165.110

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Agency	Description	Information	Reference
<u>NATIONAL</u> (cont.)			
c. Food			
EPA	Revokes tolerances and tolerance exemptions for residues of 1,1,1-trichloroethane		EPA 2005 69 FR 43918
FDA	Indirect food additive for use only as a component of adhesives		FDA 2003b 21CFR175.105
d. Other			
ACGIH	Carcinogenicity classification	A4 ^d	ACGIH 2003
EPA	Carcinogenicity classification	Group D ^e	IRIS 2004
	RfC	No data	
	RfD	Withdrawn	
	Superfund; community right-to-know; toxic chemical release reporting; effective date	01/01/1987	EPA 2004i 40CFR372.65
	Superfund; designated as a hazardous substance pursuant to Section 307(a) of the Clean Water Act, Section 112 of the Clean Air Act, and Section 3001 of RCRA		EPA 2004j 40CFR302.4
	Reportable quantity	1,000 pounds	
	RCRA waste no.	U226	
	TSCA; health and safety data reporting		EPA 2004k 40CFR716.120
	Effective date	10/04/1982	
	Sunset date	10/04/1992	
NTP	Carcinogenicity classification	No data	NTP 2005
<u>STATE</u>			
a. Air			
	No data		
b. Water			
	Drinking water guidelines and standards		
Arizona		200 µg/L	HSDb 2004
Connecticut		200 µg/L	
Maine		200 µg/L	
Minnesota		600 µg/L	
New Jersey		30 µg/L	
c. Food			
	No data		

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Table 8-1. Regulations and Guidelines Applicable to 1,1,1-Trichloroethane

Agency	Description	Information	Reference
<i>STATE (cont.)</i>			
d. Other	No data		

^aGroup 3: Not classifiable as to its carcinogenicity to humans.

^bOccurs in drinking-water at concentrations well below those at which toxic effects may occur.

^cNIOSH recommends that 1,1,1-trichloroethane be treated in the workplace with caution because of their structural similarity to the four chloroethanes shown to be carcinogenic in animals.

^dA4: Not classifiable as a human carcinogen.

^eGroup D: Not classifiable as to human carcinogenicity.

ACGIH = American Conference of Governmental Industrial Hygienists; CFR = Code of Federal Regulations; DWEL = drinking water equivalent level; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; FR = Federal Register; HA = health advisory; HSDB = Hazardous Substances Data Bank; IARC = International Agency for Research on Cancer; IDLH = immediately dangerous to life or health; IRIS = Integrated Risk Information System; MCL = maximum contaminant level; MCLG = maximum contaminant level goal; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = permissible exposure limit; RCRA = Resource Conservation and Recovery Act; REL = recommended exposure limit; RfC = reference concentration; RfD = reference dose; STEL = short-term exposure limit; TLV = threshold limit values; TSCA = Toxic Substances Control Act; TWA = time-weighted average; USC = United States Codes; WHO = World Health Organization