

## CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding BCEE in air, water, and other media are summarized in Table 7-1. This table is not an exhaustive list, and current regulations should be verified by the appropriate regulatory agency.

ATSDR develops MRLs which are substance specific guidelines intended to serve as screening levels by ATSDR health assessors and other responders to identify contaminants and potential health effects that may be of concern at hazardous waste sites. See Section 1.3 and Appendix A for detailed information on the MRLs for BCEE.

**Table 7-1. Regulations and Guidelines Applicable to Bis(2-chloroethyl)Ether**

Agency	Description	Information	Reference
<b>Air</b>			
EPA	RfC	No data	<a href="#">IRIS 2002</a>
WHO	Air quality guidelines	No data	<a href="#">WHO 2010</a>
<b>Water &amp; Food</b>			
EPA	Drinking water standards and health advisories	No data	<a href="#">EPA 2012</a>
	National primary drinking water regulations	No data	<a href="#">EPA 2009</a>
	RfD	No data	<a href="#">IRIS 2002</a>
WHO	Drinking water quality guidelines	No data	<a href="#">WHO 2017</a>
FDA	EAFUS	No data <sup>a</sup>	<a href="#">FDA 2013</a>
<b>Cancer</b>			
ACGIH	Carcinogenicity classification	A4 <sup>b</sup>	ACGIH 2016
HHS	Carcinogenicity classification	No data	<a href="#">NTP 2016</a>
EPA	Carcinogenicity classification	B2 <sup>c,d</sup>	<a href="#">IRIS 2002</a>
IARC	Carcinogenicity classification	Group 3 <sup>e,f</sup>	<a href="#">IARC 1999, 2017</a>
<b>Occupational</b>			
ACGIH	TLV	5 ppm <sup>g</sup>	ACGIH 2016
	STEL	10 ppm <sup>g</sup>	
OSHA	PEL (8-hour TWA) for general industry, construction, and shipyards	15 ppm (90 mg/m <sup>3</sup> ) <sup>g,h</sup>	<a href="#">OSHA 2016a</a> , <a href="#">2016b</a> , <a href="#">2016c</a>
NIOSH	REL (up to 10-hour TWA)	5 ppm (30 mg/m <sup>3</sup> ) <sup>g,i</sup>	<a href="#">NIOSH 2016</a>
	STEL	10 ppm (60 mg/m <sup>3</sup> ) <sup>g,i</sup>	
	IDLH	100 ppm <sup>i</sup>	

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Agency	Description	Information	Reference
<b>Emergency Criteria</b>			
EPA	AEGLs-air	No data	<a href="#">EPA 2016</a>
AIHA	ERPGs	No data	<a href="#">AIHA 2015</a>
DOE	PACs-air		<a href="#">DOE 2016a</a>
	PAC-1 <sup>j</sup>	10 ppm	
	PAC-2 <sup>j</sup>	25 ppm	
	PAC-3 <sup>j</sup>	250 ppm	

<sup>a</sup>The EAFUS list of substances contains ingredients added directly to food that FDA has either approved as food additives or listed or affirmed as GRAS.

<sup>b</sup>A4: not classifiable as a human carcinogen.

Group 2B: possibly carcinogenic to humans.

<sup>c</sup>Group B2: probable human carcinogen.

<sup>d</sup>Based on positive carcinogenicity results in two strains of mice and evidence of mutagenicity.

<sup>e</sup>Group 3: not classifiable as to its carcinogenicity to humans.

<sup>f</sup>Based on inadequate evidence of carcinogenicity in humans and limited evidence in experimental animals.

<sup>g</sup>Skin notation.

<sup>h</sup>Ceiling concentration; exposure concentration should not be exceeded at any time during an 8-hour shift.

<sup>i</sup>Potential occupational carcinogen

<sup>j</sup>Definitions of PAC terminology are available from DOE (2016b).

ACGIH = American Conference of Governmental Industrial Hygienists; AEGL = acute exposure guideline levels; AIHA = American Industrial Hygiene Association; DOE = Department of Energy; EAFUS = Everything Added to Food in the United States; EPA = Environmental Protection Agency; ERPG = emergency response planning guidelines; FDA = Food and Drug Administration; GRAS = generally recognized as safe; HHS = Department of Health and Human Services; IARC = International Agency for Research on Cancer; IRIS = Integrated Risk Information System; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PAC = Protective Action Criteria; PEL = permissible exposure limit; REL = recommended exposure limit; RfC = inhalation reference concentration; RfD = oral reference dose; STEL = short-term exposure limit; TLV = threshold limit values; TWA = time-weighted average; WHO = World Health Organization