

CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding bromomethane 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.

Table 7-1. Regulations and Guidelines Applicable to Bromomethane

Agency	Description	Information	Reference
Air			
EPA	RfC	5x10 ⁻³ mg/m ³ ^a	IRIS 2002
WHO	Air quality guidelines	Not listed	WHO 2010
Water & Food			
EPA	Drinking water standards and health advisories		EPA 2018b
	1-Day health advisory (10-kg child)	0.1 mg/L	
	10-Day health advisory (10-kg child)	0.1 mg/L	
	DWEL	0.05 mg/L	
	Lifetime health advisory	0.01 mg/L	
	10 ⁻⁴ Cancer risk	No data	
	National primary drinking water regulations	Not listed	EPA 2009
	RfD	1.4x10 ⁻³ mg/kg/day ^b	IRIS 2002
WHO	Drinking water quality guidelines	No data	WHO 2017
FDA	Substances Added to Food	Not listed ^c	FDA 2018
Cancer			
HHS	Carcinogenicity classification	No data	NTP 2016
EPA	Carcinogenicity classification	Group D ^d	IRIS 2002
IARC	Carcinogenicity classification	Group 3 ^e	IARC 1999
Occupational			
OSHA	Ceiling ^f PEL for general industry, shipyards and construction	20 ppm ^g	OSHA 2018a , 2018b , 2018c
NIOSH	REL (up to 10-hour TWA)	None established ^h	NIOSH 2018
	IDLH	250 ppm	NIOSH 1994
Emergency Criteria			
EPA	AEGLs-air	No data	EPA 2016f
	AEGL-1 ⁱ		
	10-minute	NR ^j	
	30-minute	NR ^j	
	60-minute	NR ^j	
	4-hour	NR ^j	
	8-hour	NR ^j	

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Agency	Description	Information	Reference
	AEGL-2 ⁱ		
	10-minute	940 ppm	
	30-minute	380 ppm	
	60-minute	210 ppm	
	4-hour	67 ppm	
	8-hour	67 ppm	
	AEGL-3 ⁱ		
	10-minute	3,300 ppm	
	30-minute	1,300 ppm	
	60-minute	740 ppm	
	4-hour	230 ppm	
	8-hour	130 ppm	
DOE	PACs-air		DOE 2018b
	PAC-1 ^k	19 ppm	
	PAC-2 ^k	210 ppm	
	PAC-3 ^k	740 ppm	

^aThe RfC is based on a LOAEL(HEC) of 0.48 mg/m³ for degenerative and proliferative lesions of the olfactory epithelium of the nasal cavity in rats.

^bThe RfD is based on a NOAEL of 1.4 mg/kg/day for epithelial hyperplasia of the forestomach in rats.

^cThe Substances Added to Food inventory replaces EAFUS and contains the following types of ingredients: food and color additives listed in FDA regulations, flavoring substances evaluated by FEMA or JECFA, GRAS substances listed in FDA regulations, substances approved for specific uses in food prior to September 6, 1958, substances that are listed in FDA regulations as prohibited in food, delisted color additives, and some substances "no longer FEMA GRAS."

^dGroup D: not classifiable as to human carcinogenicity.

^eGroup 3: not classifiable as to its carcinogenicity to humans.

^fAn employee's exposure will at no time exceed the exposure limit given for that substance. If instantaneous monitoring is not feasible, then the ceiling will be assessed as a 15-minute TWA exposure, which will not be exceeded at any time over a working day.

^gSkin designation.

^hPotential occupational carcinogen.

ⁱDefinitions of AEGL terminology are available from EPA (2018c).

^jNR: not recommended due to insufficient data.

^kDefinitions of PAC terminology are available from U.S. DOE (2018a).

AEGL = acute exposure guideline levels; DOE = Department of Energy; DWEL = drinking water equivalent level; EAFUS = Everything Added to Food in the United States; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; FEMA = Flavor and Extract Manufacturers Association; GRAS = generally recognized as safe; HEC = human equivalent concentration; HHS = Department of Health and Human Services; IARC = International Agency for Research on Cancer; IDLH = immediately dangerous to life or health; IRIS = Integrated Risk Information System; JECFA = Joint Expert Committee on Food Additives; LOAEL = lowest-observed-adverse-effect level; NIOSH = National Institute for Occupational Safety and Health; NOAEL = no-observed-adverse-effect level; 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; TWA = time-weighted average; WHO = World Health Organization