

CHAPTER 7. REGULATIONS AND GUIDELINES

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

Chloromethane is on the list of chemicals subject to the requirements of “The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (EPA 2018g). Section 313 of Title III of EPCRA, requires owners and operators of certain facilities that manufacture, import, process, or otherwise use the chemicals on this list to report annually their release of those chemicals to any environmental media (EPA 2015aa).

OSHA requires employers of workers who are occupationally exposed to chloromethane to institute engineering controls and work practices to reduce and maintain employee exposure at or below permissible exposure limits (PELs). The employer must use controls and practices, if feasible, to reduce exposure to or below an 8-hour time-weighted average (TWA) of 100 ppm (OSHA 2018). The acceptable ceiling concentration for chloromethane is 200 ppm. The acceptable maximum peak above this ceiling concentration is 300 ppm. Therefore, during an 8-hour work shift a person may be exposed to a concentration of chloromethane measuring 200 ppm or greater, but never more than 300 ppm and only for a maximum period of 5 minutes within any 3-hour period. An exposure such as this must be compensated by exposures to concentrations less than 100 ppm so that the cumulative exposure for the 8-hour shift does not exceed the 100 ppm exposure limit (OSHA 2018).

The EPA regulates chloromethane under the Clean Air Act (CAA) and has designated chloromethane as a hazardous air pollutant (HAP) (EPA 2017aa). The major source category for which chloromethane emissions are controlled is the synthetic organic chemicals manufacturing industry (SOCMI) and includes equipment leaks (EPA 2018l), distillation operations (EPA 2018c), and reactor processes (EPA 2018d).

Chloromethane is regulated by the Clean Water Effluent Guidelines in Subchapter N of Title 40 of the Code of Federal Regulations. Electroplating is the point source category for which chloromethane is controlled as a total toxic organic (EPA 2018k). The point source categories for which chloromethane has

7. REGULATIONS AND GUIDELINES

specific regulatory performance standards include organic chemicals, plastics, and synthetic fibers (EPA 2018h), steam electric power generator use (EPA 2018i), and metal finishing processes (EPA 2018j).

The Resource Conservation and Recovery Act (RCRA) identifies chloromethane as a toxic waste with toxicity and ignitability hazardous properties, and has assigned it the hazardous waste number U045 (EPA 2018e).

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), owners of vessels or facilities are required to immediately report release of chloromethane equal to or greater than the reportable quantity of 100 pounds (45.4 kg) (EPA 2018f).

Table 7-1. Regulations and Guidelines Applicable to Chloromethane

Agency	Description	Information	Reference
Air			
EPA	RfC	0.09 mg/m ³	IRIS 2001
	Subchronic provisional RfC	3 mg/m ³	EPA 2012
WHO	Air quality guidelines	0.018 mg/m ³	WHO 2000
Water & Food			
EPA	Drinking water standards		EPA 2018a
	1-day health advisory for a 10-kg child	9 mg/L	
	10-day health advisory for a 10-kg child	0.4 mg/L	
	DWEL	No data	
	MCL (total trihalomethanes)	No data	
	National primary drinking water regulations	No data	EPA 2009
	RfD	No data	IRIS 2001
WHO	Disinfection by-products-drinking-water	No data	WHO 2017
FDA	Substances Added to Food	No data ^a	FDA 2019
Cancer			
HHS	Carcinogenicity classification	No data	NTP 2016
EPA	Carcinogenicity classification	Group D ^b	IRIS 2001
IARC	Carcinogenicity classification	Group 3 ^c	IARC 2019
NIOSH	Carcinogenicity classification	Potential occupational carcinogen	NIOSH 1984
Occupational			
OSHA	PEL (8-hour TWA)	100 ppm	OSHA 2018 29 CFR 1915.1000 Table Z
NIOSH	REL (up to 10-hour TWA)	Lowest feasible concentration	NIOSH 2018
ACGIH	TLV		ACGIH 2012
	TLV-TWA	50 ppm	
	TLV-STEL	100 ppm	
Emergency Criteria			
EPA	AEGLs-air		AEGLs 2018
	AEGL 1		
	10 min	NR ^d	
	30 min	NR	
	60 min	NR	

7. REGULATIONS AND GUIDELINES

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Agency	Description	Information	Reference
	4 hr	NR	
	8 hr	NR	
	AEGL 2		
	10 min	1100 ppm	
	30 min	1100 ppm	
	60 min	910 ppm	
	4 hr	570 ppm	
	8 hr	380 ppm	
	AEGL 3		
	10 min	3800 ppm	
	30 min	3800 ppm	
	60 min	3000 ppm	
	4 hr	1900 ppm	
	8 hr	1300 ppm	
AIHA	ERPGs		AIHA 2016
	ERPG-1	150 ppm	
	ERPG-2	1000 ppm	
	ERPG-3	3000 ppm	
DOE	PACs		DOE 2016
	PAC-1	310 mg/m ³	
	PAC-2	1900 mg/m ³	
	PAC-3	6200 mg/m ³	

^aThe Substances Added to Food (formerly EAFUS) contains ingredients added directly to food that FDA has either approved as food additives or listed or affirmed as generally recognized as safe (GRAS).

^b Group D: Not classifiable as to its human carcinogenicity

^cGroup 3: Not classifiable as to its carcinogenicity to humans

^dNR: Not recommended due to insufficient data

ACGIH = American Conference of Governmental Industrial Hygienists; AEGL = acute exposure guideline levels; AIHA = American Industrial Hygiene Association; CFR = Code of Federal Regulations; HHS = Department of Health and Human Services; DOE = Department of Energy; DWEL = drinking water equivalent level; 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; IARC = International Agency for Research on Cancer; 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; 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