CHAPTER 7. REGULATIONS AND GUIDELINES

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

Table 7-1. Regulations and Guidelines Applicable to Pentachlorophenol

Agency	Description	Information	Reference
		Air	
EPA	Hazardous Air Pollutant	Listed	EPA 2020
EPA	RfC	Not derived	IRIS 2010
WHO	Air quality guidelines	Not listed	WHO 2010
		Water & Food	
EPA	Drinking water standards and health advisories		EPA 2018a
	1-Day health advisory (10-kg child)	1 mg/L	
	10-Day health advisory (10-kg child)	0.3 mg/L	
	DWEL	0.2 mg/L	
	Lifetime health advisory	0.04 mg/L	
	10^{-4} Cancer risk	0.009 mg/L	
	National primary drinking water regulations		EPA 2009
	MCL	0.001 mg/L	
	PHG	0 mg/L	
	RfD	0.005 mg/kg/day	IRIS 2010
WHO	Drinking water quality guidelines		WHO 2017
	Provisional guideline value	0.009 mg/L[a,b]	
FDA	Substances Added to Food	No data[c]	FDA 2021a
	Allowable level in bottled water	0.001 mg/L	FDA 2021b
	Indirect additives used in food contact substances		
	Pentachlorophenol	Permitted under adhesives regulation and wood preservatives regulation with limitation	FDA 2021c
	Sodium pentachlorophenate	Permitted under multiple indirect additives regulations, some with limitation	FDA 2021d

Table 7-1. Regulations and Guidelines Applicable to Pentachlorophenol

Agency	Description	Information	Reference
		Cancer	
HHS	Carcinogenicity classification		NTP 2016
	Pentachlorophenol and byproducts of its synthesis	Reasonably anticipated to be a human carcinogen	
EPA	Carcinogenicity classification	Likely to be carcinogenic to humans	IRIS 2010
	Oral slope factor	4×10^{-1} per mg/kg/day	
IARC	Carcinogenicity classification	Group 1[d]	IARC 2019
		Occupational	
OSHA	PEL (8-hour TWA) for general industry, shipyards and construction	0.5 mg/m^3 [e]	OSHA 2021a, 2021b, 2021c
NIOSH	REL (up to 10-hour TWA)	0.5 mg/m^3 [e]	NIOSH 2019
	IDLH	0.25 mg/m^3	NIOSH 1994
		Emergency Criteria	
EPA	AEGLs-air	No data	EPA 2018b
DOE	PACs-air		DOE 2018a
	Pentachlorophenol		
	PAC-1[f]	1 mg/m^3	
	PAC-2[f]	15 mg/m^3	
	PAC-3[f]	150 mg/m^3	
	Sodium pentachlorophenate		
	PAC-1[f]	0.22 mg/m^3	
	PAC-2[f]	2.4 mg/m^3	
	PAC-3[f]	8.4 mg/m^3	

[a]Concentration in drinking-water associated with an upperbound excess lifetime cancer risk of 10^{-5} (one additional case of cancer per 100,000 of the population ingesting drinking water containing the substance at the guideline value for 70 years).
[b]Value is considered provisional because of variations in metabolism between experimental animals and humans.
[c]The 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."
[d]Group 1: carcinogenic to humans.
[e]Skin designation.
[f]Definitions of PAC terminology are available from U.S. Department of Energy (DOE 2018b).

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 of the United States; GRAS = generally recognized as safe; 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 FAO/WHO Expert Committee on Food Additives; LOAEL = lowest observed adverse effect level; MCL = maximum contaminant level; 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; PHG = public health goal; REL = recommended exposure limit; RfC = inhalation reference concentration; RfD = oral reference dose; TWA = time-weighted average; WHO = World Health Organization