

CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding vinyl chloride 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 vinyl chloride.

Table 7-1. Regulations and Guidelines Applicable to Vinyl Chloride

Agency	Description	Information	Reference
Air			
EPA	RfC	1x10 ⁻¹ mg/m ³ (0.04 ppm)	EPA 2000
WHO	Indoor air quality guidelines	No data	WHO 2010
	Ambient air quality guidelines 10 ⁻⁶ Cancer risk	1 µg/m ³	WHO 2000
Water & Food			
EPA	Drinking water standards and health advisories		EPA 2018b
	1-Day health advisory (10-kg child)	3 mg/L	
	10-Day health advisory (10-kg child)	3 mg/L	
	DWEL	0.1 mg/L	
	10 ⁻⁴ Cancer risk	0.002 mg/L	
	National primary drinking water regulations		EPA 2009
	MCL	0.002 mg/L	
EPA	PHG	0 mg/L	
	RfD	3x10 ⁻³ mg/kg/day	EPA 2000
WHO	Drinking water quality guidelines	0.0003 mg/L	WHO 2022
FDA	Substances Added to Food ^a	Vinyl chloride monomer not listed	FDA 2022
	Allowable level in bottled water	0.002 mg/L	FDA 2017
Cancer			
HHS	Carcinogenicity classification	Known to be a human carcinogen	NTP 2021

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Agency	Description	Information	Reference
EPA	Carcinogenicity classification	Known human carcinogen by inhalation and oral exposure routes; highly likely human carcinogen by dermal exposure route	EPA 2000
	Oral slope factor (continuous lifetime exposure during adulthood)	7.2×10^{-1} per mg/kg/day	
	Oral slope factor (continuous lifetime exposure from birth)	1.4 per mg/kg/day	
IARC	Carcinogenicity classification	Group 1 ^b	IARC 2012
Occupational			
OSHA	PEL (8-hour TWA) for general industry, shipyards, and construction	1 ppm	OSHA 2021a , 2021b , 2021c
	Ceiling PEL (15-minute TWA) for general industry, shipyards, and construction	5 ppm	
NIOSH	REL (up to 10-hour TWA)	No data ^c	NIOSH 2019
Emergency Criteria			
EPA	AEGLs-air		EPA 2018c
	AEGL 1 ^d		
	10-minute	450 ppm	
	30-minute	310 ppm	
	60-minute	250 ppm	
	4-hour	140 ppm	
	8-hour	70 ppm	
	AEGL 2 ^d		
	10-minute	2,800 ppm	
	30-minute	1,600 ppm	
	60-minute	1,200 ppm	
	4-hour	820 ppm	
	8-hour	820 ppm	
	AEGL 3 ^d		
	10-minute	12,000 ppm ^e	
	30-minute	6,800 ppm ^e	
	60-minute	4,800 ppm ^e	
	4-hour	3,400 ppm	
	8-hour	3,400 ppm	

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Agency	Description	Information	Reference
DOE	PACs-air		DOE 2015
	PAC-1 ^f	250 ppm	
	PAC-2 ^f	1,200 ppm	
	PAC-3 ^f	4,800 ppm ^e	

^aThe 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 from use in food, delisted color additives, and some substances "no longer FEMA GRAS."

^bGroup 1: carcinogenic to humans.

^cPotential occupational carcinogen.

^dDefinitions of AEGL terminology are available from EPA (2018d).

^eGreater than or equal to 10% of the Lower Explosion Limit. Safety considerations against the hazard of explosion must be taken into account.

^fDefinitions of PAC terminology are available from DOE (2023).

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; JECFA = Joint Food and Agriculture Organization/WHO Expert Committee on Food Additives; 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