

## CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding *n*-hexane 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 provisional MRLs for *n*-hexane.

**Table 7-1. Regulations and Guidelines Applicable to *n*-Hexane**

Agency	Description	Information	Reference
<b>Air</b>			
EPA	RfC	0.7 mg/m <sup>3</sup> (0.2 ppm)	<a href="#">IRIS 2005</a>
	Provisional peer reviewed toxicity values		
	Provisional subchronic RfC	2 mg/m <sup>3</sup> (0.6 ppm)	<a href="#">EPA 2009a</a>
WHO	Air quality guidelines	No data	<a href="#">WHO 2010</a>
<b>Water &amp; Food</b>			
EPA	Drinking water standards and health advisories		<a href="#">EPA 2018a</a>
	1-Day health advisory (10-kg child)	10 mg/L	
	10-Day health advisory (10-kg child)	4 mg/L	
	Lifetime health advisory	No data	
	National primary drinking water regulations	Not listed	<a href="#">EPA 2009b</a>
	RfD	Not assessed	<a href="#">IRIS 2005</a>
	Provisional peer reviewed toxicity values		
	Provisional subchronic RfD	0.3 mg/kg/day	<a href="#">EPA 2009a</a>
WHO	Drinking water quality guidelines	No data	<a href="#">WHO 2022</a>
FDA	Substances added to food (formerly EAFUS)	Allowed as extractant in the preparation of several food/color additives, with restrictions on residue levels; allowed in some indirect food additives (particular coatings used in food packaging)	<a href="#">FDA 2023</a>
<b>Cancer</b>			
HHS	Carcinogenicity classification	Not evaluated	<a href="#">NTP 2021</a>
EPA	Carcinogenicity classification	Inadequate information to assess carcinogenic potential	<a href="#">IRIS 2005</a>

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Agency	Description	Information	Reference
IARC	Carcinogenicity classification	Not evaluated	<a href="#">IARC 2023</a>
<b>Occupational</b>			
OSHA	PEL (8-hour TWA) for general industry, shipyards, and construction	500 ppm (1800 mg/m <sup>3</sup> )	OSHA <a href="#">2021a</a> , <a href="#">2021b</a> , <a href="#">2021c</a>
NIOSH	REL (up to 10-hour TWA) IDLH	50 ppm (180 mg/m <sup>3</sup> ) 1,100 ppm <sup>a</sup>	<a href="#">NIOSH 2019</a>
<b>Emergency Criteria</b>			
EPA	AEGLs-air		<a href="#">EPA 2018b</a>
	AEGL 1 <sup>b</sup>		
	10-minute, 30-minute, 60-minute, 4-hour, 8-hour	No recommendation due to insufficient data	
	AEGL 2 <sup>b</sup>		
	10-minute	4,000 ppm <sup>c</sup>	
	30-minute	2,900 ppm <sup>c</sup>	
	60-minute	2,900 ppm <sup>c</sup>	
	4-hour	2,900 ppm <sup>c</sup>	
	8-hour	2,900 ppm <sup>c</sup>	
	AEGL 3 <sup>b</sup>		
	10-minute	12,000 ppm <sup>d</sup>	
	30-minute	8,600 ppm <sup>e</sup>	
	60-minute	8,600 ppm <sup>e</sup>	
	4-hour	8,600 ppm <sup>e</sup>	
	8-hour	8,600 ppm <sup>e</sup>	
DOE	PACs-air		<a href="#">DOE 2018a</a>
	PAC-1 <sup>f</sup>	260 ppm	
	PAC-2 <sup>f</sup>	2,900 ppm <sup>c</sup>	
	PAC-3 <sup>f</sup>	8,600 ppm <sup>e</sup>	

<sup>a</sup>Based strictly on safety considerations; IDLH is 10% of LEL of n-hexane in air (11,000 ppm).

<sup>b</sup>Definitions of AEGL terminology are available from EPA (2018c).

<sup>c</sup>Value is greater than 10% of the LEL; safety considerations against explosion hazard must be taken into account.

<sup>d</sup>Value is greater than the LEL; extreme safety considerations against explosion hazard must be taken into account.

<sup>e</sup>Value is greater than 50% of the LEL; extreme safety considerations against explosion hazard must be taken into account.

<sup>f</sup>Definitions of PAC terminology are available from DOE (2018b).

AEGL = acute exposure guideline levels; DOE = Department of Energy; EAFUS = Everything Added to Food in the United States; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; 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; LEL = lower explosive limit; 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; TWA = time-weighted average; WHO = World Health Organization