

## CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene 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 naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

**Table 7-1. Regulations and Guidelines Applicable to Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene**

Agency	Description	Information	Reference
<b>Air</b>			
EPA	RfC Naphthalene	$3 \times 10^{-3}$ mg/m <sup>3</sup> (0.0006 ppm)	<a href="#">IRIS 1998</a>
WHO	Indoor air quality guidelines Naphthalene	0.01 mg/m <sup>3</sup> (0.002 ppm) annual average	<a href="#">WHO 2010</a>
<b>Water &amp; Food</b>			
EPA	Drinking water standards and health advisories Naphthalene		<a href="#">EPA 2018a</a>
	1-Day health advisory (10-kg child)	0.5 mg/L	
	10-Day health advisory (10-kg child)	0.5 mg/L	
	DWEL	0.7 mg/L	
	Lifetime health advisory	0.1 mg/L	
	10 <sup>-4</sup> Cancer risk	No data	
	National primary drinking water regulations	Not listed	<a href="#">EPA 2009b</a>
	Chronic RfD (IRIS)		
	Naphthalene	$2 \times 10^{-2}$ mg/kg/day	<a href="#">IRIS 1998</a>
	2-Methylnaphthalene	$4 \times 10^{-3}$ mg/kg/day	<a href="#">IRIS 2003</a>
	Provisional peer reviewed toxicity values		
	2-Methylnaphthalene		
	Subchronic provisional RfD	$4 \times 10^{-3}$ mg/kg/day	<a href="#">EPA 2007b</a>

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Agency	Description	Information	Reference
	Human health risk assessment in support of registration review (OPP)		
	Naphthalene		<a href="#">EPA 2018b</a>
	Chronic RfD	0.1 mg/kg/day	
	Acute RfD	0.4 mg/kg/day	
WHO	Drinking water quality guidelines	No data	<a href="#">WHO 2017</a>
FDA	Substances added to food <sup>a</sup>		
	1-Methylnaphthalene	FEMA GRAS	<a href="#">FDA 2022b</a>
<b>Cancer</b>			
HHS	Carcinogenicity classification		
	Naphthalene	Reasonably anticipated to be a human carcinogen	<a href="#">NTP 2021</a>
EPA	Carcinogenicity classification		
	Naphthalene	Group C <sup>b</sup>	<a href="#">IRIS 1998</a>
	Provisional peer reviewed toxicity values		
	1-Methylnaphthalene		
	Provisional oral slope factor	2.9x10 <sup>-2</sup> mg/kg/day	<a href="#">EPA 2008</a>
IARC	Carcinogenicity classification		
	Naphthalene	Group 2B <sup>c</sup>	<a href="#">IARC 2002</a>
<b>Occupational</b>			
OSHA	PEL (8-hour TWA) for general industry, shipyards, and construction		
	Naphthalene	10 ppm (50 mg/m <sup>3</sup> )	OSHA <a href="#">2020a</a> , <a href="#">2020b</a> , <a href="#">2020c</a>
NIOSH	REL and IDLH		
	Naphthalene		
	REL TWA (up to 10-hour TWA)	10 ppm (50 mg/m <sup>3</sup> )	<a href="#">NIOSH 2019</a>
	REL ST (15-minute TWA)	15 ppm (75 mg/m <sup>3</sup> )	
	IDLH	250 ppm	<a href="#">NIOSH 1994</a>
<b>Emergency Criteria</b>			
EPA	AEGLs-air	No data	<a href="#">EPA 2018c</a>
DOE	PACs-air		<a href="#">DOE 2018a</a>
	Naphthalene		
	PAC-1 <sup>d</sup>	15 ppm	
	PAC-2 <sup>d</sup>	83 ppm	
	PAC-3 <sup>d</sup>	500 ppm	
	1-Methylnaphthalene		
	PAC-1 <sup>d</sup>	20 mg/m <sup>3</sup>	
	PAC-2 <sup>d</sup>	61 mg/m <sup>3</sup>	
	PAC-3 <sup>d</sup>	360 mg/m <sup>3</sup>	

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Agency	Description	Information	Reference
	2-Methylnaphthalene		
	PAC-1 <sup>d</sup>	9 mg/m <sup>3</sup>	
	PAC-2 <sup>d</sup>	54 mg/m <sup>3</sup>	
	PAC-3 <sup>d</sup>	320 mg/m <sup>3</sup>	

<sup>a</sup>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 from use in food, delisted color additives, and some substances "no longer FEMA GRAS."

<sup>b</sup>Group C: possible human carcinogen.

<sup>c</sup>Group 2B: possibly carcinogenic to humans.

<sup>d</sup>Definitions of PAC terminology are available from 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; FAO = Food and Agriculture Organization; 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; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OPP = Office of Pesticide Programs; 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; ST = short-term; TWA = time-weighted average; WHO = World Health Organization