

CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding 2-butanone 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 2-butanone.

Table 7-1. Regulations and Guidelines Applicable to 2-Butanone

Agency	Description	Information	Reference
Air			
EPA	RfC	5 mg/m ³ (1.7 ppm)	IRIS 2003
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)	75 mg/L	
	10-Day health advisory (10-kg child)	7.5 mg/L	
	DWEL	20 mg/L	
	Lifetime health advisory	4 mg/L	
	10 ⁻⁴ Cancer risk	No data	
	National primary drinking water regulations	Not listed	EPA 2009
	RfD	0.6 mg/kg/day	IRIS 2003
WHO	Drinking water quality guidelines	Not listed	WHO 2017
FDA	Substances Added to Food ^a	Approved under food additive and GRAS regulations	FDA 2020
Cancer			
HHS	Carcinogenicity classification	No data	NTP 2016
EPA	Carcinogenicity classification	Data are inadequate for an assessment of human carcinogenic potential	IRIS 2003
IARC	Carcinogenicity classification	No data	IARC 2020
Occupational			
OSHA	PEL (8-hour TWA) for general industry, shipyards, and construction	200 ppm	OSHA 2019a , 2019b , 2019c
NIOSH	REL (up to 10-hour TWA)	200 ppm	NIOSH 2019
	STEL (15-minute TWA)	300 ppm	
	IDLH	3,000 ppm	NIOSH 1994

7. REGULATIONS AND GUIDELINES

Table 7-1. Regulations and Guidelines Applicable to 2-Butanone

Agency	Description	Information	Reference
Emergency Criteria			
EPA	AEGLs-air		EPA 2018b
	AEGL 1 ^b		
	10-minute, 30-minute, 60-minute, 4-hour, and 8-hour	200 ppm	
	AEGL 2 ^b		
	10-minute	4,900 ppm ^c	
	30-minute	3,400 ppm ^c	
	60-minute	2,700 ppm ^c	
	4-hour	1,700 ppm	
	8-hour	1,700 ppm	
	AEGL 3 ^b		
	10-minute	10,000 ppm ^d	
	30-minute	10,000 ppm ^d	
	60-minute	4,000 ppm ^c	
	4-hour	2,500 ppm ^c	
	8-hour	2,500 ppm ^c	
DOE	PACs-air		DOE 2018a
	PAC-1 ^e	200 ppm	
	PAC-2 ^e	2,700 ppm	
	PAC-3 ^e	4,000 ppm	

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

^bDefinitions of AEGL terminology are available from U.S. Environmental Protection Agency (EPA 2018c).

^cConcentration is $\geq 10\%$ of the Lower Explosive Limit (LEL) of 18,000 ppm for methyl ethyl ketone. Safety considerations against the hazard of explosion must be taken into account.

^dConcentration is $\geq 50\%$ of the LEL of 18,000 ppm for methyl ethyl ketone. Extreme safety considerations against the hazard of explosion must be taken into account.

^eDefinitions 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; 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; TWA = time-weighted average; WHO = World Health Organization