CHAPTER 7. REGULATIONS AND GUIDELINES

Pertinent international and national regulations, advisories, and guidelines regarding 3,3'-dichlorobenzidine 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 3,3'-dichlorobenzidine.

Table 7-1. Regulations and Guidelines Applicable to 3,3'-Dichlorobenzidine

Agency	Description	Information	Reference
	Air		
EPA	RfC	Not evaluated	IRIS 2006
WHO	Air quality guidelines	No data	WHO 2010
	Water & Food		
EPA	Drinking water standards and health advisories	Not listed	EPA 2018b
	National primary drinking water regulations	Not listed	EPA 2009
	RfD	Reviewed but inadequate data	IRIS 2006
WHO	Drinking water quality guidelines	No data	WHO 2017
FDA	Substances Added to Food[a]	Not listed	FDA 2021
	Cancer		
HHS	Carcinogenicity classification	Reasonably anticipated to be a human carcinogen	NTP 2021
EPA	Carcinogenicity classification	Group B2[b]	IRIS 2006
	Oral slope factor	$4.5X10^{-1}$ mg/kg-day	
IARC	Carcinogenicity classification	Group 2B[c]	IARC 1987
	Occupational		
OSHA	PEL (8-hour TWA) for general industry, shipyards and construction	No PEL established; Potential occupational carcinogen; Exposure to be controlled through the required use of engineering controls, work practices, and personal protective equipment	OSHA 2021a, OSHA 2021b

Table 7-1. Regulations and Guidelines Applicable to 3,3'-Dichlorobenzidine

Agency	Description	Information	Reference
NIOSH	REL (up to 10-hour TWA)	No REL established; Potential occupational carcinogen; Exposures to carcinogens be limited to the lowest feasible concentration	NIOSH 2019
	Emergency Criteria		
EPA	AEGLs-air	No data	EPA 2018a
DOE	PACs-air		DOE 2018a
	PAC-1[d]	2.1 ppm	
	PAC-2[d]	23 ppm	
	PAC-3[d]	140 ppm	

[a]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".
[b]Group B2: Probable human carcinogen.
[c]Group 2B: Possibly carcinogenic to humans.
[d]Definitions of PAC terminology are available from U.S. Department of Energy (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; 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; 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; TWA = time-weighted average; WHO = World Health Organization