

7. REGULATIONS AND ADVISORIES

Because of its potential to cause adverse health effects in exposed people, a number of regulations and guidelines have been established for styrene by various national and state agencies. These values are summarized in Table 7-1.

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TABLE 7-1. Regulations and Guidelines Applicable to Styrene

Agency	Description	Information	References
<u>INTERNATIONAL</u>			
IARC	Carcinogenic classification	Group 2B ^a	IARC 1987
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	PEL TWA STEL	50 ppm (215 mg/m ³) 100 ppm (425 mg/m ³)	OSHA 1989 (29 CFR 1910.1000) Table Z-1-A
b. Water:			
EPA ODW	MCLG MCL	0.1 mg/L ^b 0.1 mg/L	EPA 1991
	Monitoring for unregulated contaminants	Yes	EPA 1987b
EPA OWRS	General permits under NPDES	Yes	40 CFR 122, Appendix D, Table V
	General Pretreatment Regulations for Existing and New Sources of Pollution	Yes	40 CFR 403
	Hazardous substance Reportable quantity	Yes 1,000 pounds	40 CFR 116 40 CFR 117.3
c. Other:			
EPA OERR	Reportable quantity	1,000 pounds	EPA 1989a (40 CFR 302.4)
EPA OSW	Groundwater monitoring list (Appendix IX)	Yes	EPA 1987c (40 CFR 264)
EPA OTS	Toxic chemical release reporting rule	Yes	EPA 1988a (40 CFR 372)
	Preliminary assessment information rule	Yes	EPA 1982 (40 CFR 712.30)
FDA	Food additive-synthetic flavoring substance	Yes	21 CFR 172.515
	Indirect food additive - adhesives, styrene block polymers	Yes	21 CFR 175.105, 177.181
	Component of polymers in paper in contact with dry food	Yes	21 CFR 176.180
	Residual styrene monomer limit in polystyrene intended for use in contact with food	1% by weight	21 CFR 177.1640
Guidelines:			
a. Air:			
ACGIH	TLV TWA STEL	50 ppm (215 mg/m ³) 100 ppm (425 mg/m ³)	ACGIH 1988
NIOSH	IDLH TWA (10 hr) Ceiling (15 min)	5,000 ppm 50 ppm 100 ppm	NIOSH 1985
b. Water:			
EPA ODW	Health Advisories		EPA 1987a
	One-day (child)	22.5 mg/L	
	Ten-day (child)	2 mg/L	
	Longer-term (child)	2 mg/L	
	(adult)	7 mg/L	
	Lifetime	0.14 mg/L	

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TABLE 7-1 (Continued)

Agency	Description	Information	References
c. Other:			
EPA	Carcinogenic Classification (under review by EPA)	Group B2/C ^c	EPA 1989b
	Cancer slope factor	0.03 (mg/kg/day) ⁻¹	EPA 1988b
	RfD (oral)	0.2 mg/kg/day	IRIS 1989
STATE			
Regulations and Guidelines:			
a. Air:	Acceptable ambient air concentrations		NATICH 1989
Connecticut		4.30 mg/m ³ (8 hr)	
Indiana		3.45 µg/m ³ (annual)	
Indiana (Indianapolis)		2.17 mg/m ³ (8 hr)	
Kansas		1.75 µg/m ³ (annual)	
Kansas (Kansas City)		3.45 µg/m ³ (annual)	
Massachusetts		115.81 µg/m ³ (24 hr)	
		1.75 µg/m ³ (allowable ambient level)	
Nevada		5.12 mg/m ³ (8 hr)	
New York		0.716 mg/m ³ (1 yr)	
North Carolina		42.5 mg/m ³ (15 min)	
		1.30 mg/m ³ (24 hr)	
North Carolina (Forsyth County)		1.34 mg/m ³ (24 hr)	
		42.5 mg/m ³ (15 min)	
North Dakota		2.15 mg/m ³ (8 hr)	
		4.25 mg/m ³ (1 hr)	
Rhode Island		30.0 µg/m ³ (annual)	
Vermont		0.512 mg/m ³ (annual)	
Virginia		3.60 mg/m ³ (24 hr)	
b. Water:	Drinking water quality standards		FSTRAC 1988
Arizona		140 µg/L	
Maine		270 µg/L	
Minnesota		140 µg/L	
Massachusetts		0.005 mg/L	ORS 1989
		(guideline)	
Wisconsin		10 µg/L	

^aGroup 2B: possible human carcinogen.

^bEPA proposed an MCLG and an MCL of 0.1 mg/L based on a Group C carcinogen classification and an MCLG of zero and an MCL of 0.005 mg/L based on a Group B2 carcinogen classification.

^cGroup B2: probable human carcinogen; Group C: Possibly carcinogenic to humans.

ACGIH = American Conference of Governmental Industrial Hygienists; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; IARC = International Agency for Research on Cancer; IDLH = Immediately Dangerous to Life or Health Level; MCL = Maximum Contaminant Level; MCLG = Maximum Contaminant Level Goal; NIOSH = National Institute for Occupational Safety and Health; NPDES = National Pollutant Discharge Elimination System; ODW = Office of Drinking Water; OERR = Office of Emergency and Remedial Response; OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Wastes; OTS = Office of Toxic Substances; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit; RfD = Reference Dose; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TWA = Time-Weighted Average

