

7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding xylene in air, water, and other media are summarized in Table 7-1. ATSDR has derived acute, intermediate and chronic duration inhalation MRLs of 1, 0.7 and 0.1 ppm for mixed xylene, respectively. Following oral exposure, an acute MRL of 1 mg/kg/day for *p*-xylene, and intermediate MRLs of 0.2 and 0.6 mg/kg/day for mixed xylene and *m*-xylene have been derived. EPA (IRIS 1994) has derived an oral reference dose (RfD) for xylene of 2 mg/kg/day with an uncertainty factor of 100, based on a dose-related increase in mortality of male rats in a 2-year feeding study (NTP 1986). An inhalation reference concentration (RfC) for xylene is under review by an EPA work group. Xylene is on the list of chemicals appearing in “Toxic Chemicals Subject to Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986” (EPA 1987a).

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TABLE 7-1. Regulations and Guidelines Applicable to Xylene

Agency	Description	Information	References
<u>INTERNATIONAL</u>			
IARC	Carcinogen classification	Group 3 ^a	IARC 1989
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	PEL TWA (8-hour)	100 ppm (≈434 mg/m ³)	OSHA 1992 (29 CFR 1910.1000)
	STEL (15-minute)	150 ppm (≈651 mg/m ³)	
	<i>m</i> -xylene		
	<i>o</i> -xylene		
	<i>p</i> -xylene		
b. Water:			
EPA	Designated as a hazardous substance under section 313(b)(2)(A) of the federal Water Pollution Control Act	Yes	EPA 1989a (40 CFR 116.4)
EPA	Exempted from the requirement of a tolerance when used as an aquatic herbicide applied to irrigation conveyance systems in accordance with specified conditions	Yes	EPA 1985b (40 CFR 180.1025)
EPA OSW	Groundwater monitoring list (Appendix IX [xylenes])	Yes	EPA 1987c
EPA OWRS	General permits under NPDES	Yes	EPA 1985d (40 CFR 122) Appendix D
c. Other:			
EPA	Residues of xylene are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest	NA	EPA 1971 (40 CFR 180.1001)
	Chemical information rules require manufacturers to report production, use, and exposure-related information on mixed xylene, <i>m</i> -xylene, <i>o</i> -xylene, and <i>p</i> -xylene	NA	EPA 1982 (40 CFR 712.30)
	Health and safety data reporting rules require manufacturers, processors, etc., to submit lists and copies of unpublished health and safety studies for <i>m</i> -, <i>o</i> -, and <i>p</i> -xylene	NA	EPA 1992 (40 CFR 716.120)
EPA OERR	Reportable Quantity		EPA 1989b (CFR 302.4)
	Xylenes	1,000 pounds	
	Spent xylene solvents and still bottoms from the recovery of these solvents	1,000 pounds	
	Distillation bottoms from production of phthalic anhydride from <i>o</i> -xylene	5,000 pounds	

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TABLE 7-1. Regulations and Guidelines Applicable to Xylene (*continued*)

Agency	Description	Information	References
NATIONAL (Cont.)			
EPA OSW	Hazardous waste: Xylene—the commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products	Yes	EPA 1980b (40 CFR 261.33)
	Spent xylene solvents and still bottoms from the recovery of these solvents	Yes	EPA 1981c (40 CFR 261.31)
	Distillation light ends and bottoms from production of phthalic anhydride from <i>o</i> -xylene	Yes	EPA 1981d (40 CFR 261.32)
FDA	Substance for use only as component of adhesive intended for use in packaging, transporting, or holding food in accordance with specified conditions—xylene and xylene alkylated with dicyclopentadiene	Yes	FDA 1977b (21 CFR 175.105)
Guidelines:			
a. Air:			
ACGIH	TLV TWA (8-hours)	100 ppm (=434 mg/m ³)	ACGIH 1991
	STEL-(15 minutes)	150 ppm (=651 mg/m ³)	ACGIH 1991
NIOSH	REL TWA (10 hours)	100 ppm (=434 mg/m ³)	NIOSH 1992
	Ceiling (10 minutes)	150 ppm (=651 mg/m ³)	
	IDLH (30-minutes)	10,000 ppm	NIOSH 1990b
b. Water:			
EPA ODW	Health advisory		EPA 1987b
	1-day (10-kg child)	12 mg/L	
	10-day (10-kg child)	7.8 mg/L	
	Longer term (70-kg adult)	27.3 mg/L	
	Longer term (10-kg child)	7.8 mg/L	
	Lifetime	10 mg/L	
	MCLG	10 mg/L	EPA 1991
	SNARL		EPA 1981a
	1-day (70-kg adult)	12 mg/L	
	10-day (70-kg adult)	1.2 mg/L	
	Longer term (70-kg adult)	0.62 mg/L	
c. Other:			
ACGIH	BEI		ACGIH 1991
	End of shift	1.5 g MHA/g creatinine	
	Over last 4 hours of shift	2 mg MHA/minute	

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TABLE 7-1. Regulations and Guidelines Applicable to Xylene (*continued*)

Agency	Description	Information	References
<u>NATIONAL</u> (Cont.)			
EPA	Carcinogenic classification Chronic RfD (oral)	Group D ^b 2 mg/kg/day	IRIS 1994 IRIS 1994
<u>STATE</u>			
Regulations and Guidelines:			
a. Air:	Acceptable ambient air concentration (mixed xylene)		NATICH 1993
Arizona	(1 hour)	5,500 µg/m ³	
	(24 hours)	3,500 µg/m ³	
Connecticut	(8 hours)	8,680 µg/m ³	
Indiana	(8 hours)	2,170 µg/m ³	
Louisiana	(8 hours)	10,300 µg/m ³	
Maine	(15 minutes)	65,000 µg/m ³	
	(24 hours)	300 µg/m ³	
Massachusetts	(24 hours)	11.8 µg/m ³	
	(annual average)	11.8 µg/m ³	
Nevada	(8 hours)	10.4 mg/m ³	
New York	(1 year)	1,450 µg/m ³	
North Carolina	(15 minutes)	65.5 mg/m ³	
	(24 hours)	2.7 mg/m ³	
North Dakota	(8 hours)	4.34 mg/m ³	
	(1 hour)	6.51 mg/m ³	
Oklahoma	(24 hours)	4,340 µg/m ³	
Rhode Island	(24 hours)	700 µg/m ³	
South Dakota	(8 hours)	8,700 µg/m ³	
Texas	(30 minutes)	3,700 µg/m ³	
	(annual)	435 µg/m ³	
Vermont	(annual)	1,040 µg/m ³	
Washington	(24 hours)	1,450 µg/m ³	
	Acceptable ambient air concentration (<i>m</i> -xylene)		NATICH 1993
Arizona	(1 hour)	5,500 µg/m ³	
	(24 hours)	3,500 µg/m ³	
Indiana	(8 hours)	2,170 µg/m ³	
New York	(1 year)	1,450 µg/m ³	
North Dakota	(8 hours)	4.34 mg/m ³	
	(1 hour)	6.51 mg/m ³	
South Carolina	(24 hours)	4,350 µg/m ³	
Virginia	(24 hours)	7,200 µg/m ³	
	Acceptable ambient air concentration (<i>o</i> -xylene)		NATICH 1993
Arizona	(1 hour)	5,500 µg/mg ³	
	(24 hours)	3,500 µg/m ³	
Indiana	(8 hours)	2,170 µg/m ³	
New York	(8 hours)	2,170 µg/m ³	
North Dakota	(8 hours)	4.34 mg/m ³	
	(1 hour)	6.51 mg/m ³	
South Carolina	(24 hours)	4,350 µg/m ³	
Virginia	(24 hours)	7,200 µg/m ³	

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TABLE 7-1. Regulations and Guidelines Applicable to Xylene (*continued*)

Agency	Description	Information	References
STATE (Cont.)			
	Acceptable ambient air concentration (<i>p</i> -xylene)		NATICH 1988
Arizona	(1 hour)	5,500 µg/m ³	
	(24 hours)	3,500 µg/m ³	
Indiana	(8 hours)	2,170 µg/m ³	
New York	(1 hour)	1,450 µg/m ³	
North Dakota	(8 hours)	4.34 mg/m ³	
	(1 hour)	6.51 mg/m ³	
South Carolina	(24 hours)	4,350 µg/m ³	
Virginia	(24 hours)	7,200 µg/m ³	
b. Water:			
	Drinking water (mixed xylene)		FSTRAC 1990
Arizona		440 µg/L	
Kansas		440 µg/L	
Maine		400 µg/L	
Massachusetts		1,000 µg/L	
Minnesota		400 µg/L	
New Hampshire		10,000 µg/L	
New Jersey ^c		44 µg/L	
Rhode Island		400 µg/L	
Vermont		400 µg/L	
Wisconsin		620 µg/L	
California	Drinking water (<i>m</i> -xylene)	620 µg/L	FSTRAC 1990
	Drinking water (<i>o</i> -xylene)	620 µg/L	FSTRAC 1990
	Drinking water (<i>p</i> -xylene)	620 µg/L	FSTRAC 1990

^aGroup 3: This chemical cannot be classified as to its carcinogenicity for humans.

^bGroup D: Not classifiable as to human carcinogenicity.

^cThe New Jersey State Drinking Water Quality Institute (1994) has proposed that the drinking water maximum contaminant level for mixed xylenes be changed to 1 mg/L.

ACGIH = American Conference of Governmental Industrial Hygienists; BEI = Biological Exposure Index; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; FSTRAC = Federal-State Toxicology and Regulatory Alliance Committee; IARC = International Agency for Research on Cancer; IDLH = Immediately Dangerous to Life or Health; IRIS = Integrated Risk Information System; MHA = methylhippuric acid; MCLG = Maximum Contaminant Level Goal; NA = not applicable; NAS = National Academy of Sciences; NATICH = National Air Toxics Information Clearinghouse; NIOSH = National Institute for Occupational Safety and Health; NPDES = National Pollutant Discharge Elimination System; NRC = National Research Council; ODW = Office of Drinking Water; OERR = Office of Emergency and Remedial Response; OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Waste; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limit; RfD = Reference Dose; SNARL = Suggested-No-Adverse-Response Level; STAL = Short-Term Action Level; STEL = Short-Term Exposure Limit; TLV = Threshold Limit Value; TWA = Time Weighted Average.

