

7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding sulfur trioxide and sulfuric acid in air, water, and other media are summarized in Table 7- 1.

The DHHS (1994) and EPA have not classified sulfur trioxide or sulfuric acid for carcinogenic effects. IARC considers occupational exposure to strong inorganic mists containing sulfuric acid to be carcinogenic to humans (Group 1) (IARC 1992). ACGIH has classified sulfuric acid as a suspected human carcinogen (Group A2) (ACGIH 1998).

Sulfuric acid is on the list of chemicals in “Toxic Chemicals Subject to Section 3 13 of the Emergency Planning and Community Right-to-Know Act” (EPA 1998f).

The occupational permissible exposure limit (PEL) for sulfuric acid is 1 mg/ m^3 (OSHA 1998). The NIOSH recommended exposure limit (REL) is also 1 mg/ m^3 (NIOSH 1997). ACGIH recommends a threshold limit value time-weighted average (TLV-TWA) of 1 mg/ m^3 and a short-term exposure limit (STEL) of 3 mg/ m^3 (ACGIH 1998).

No MRLs have been derived for sulfur trioxide or sulfuric acid. EPA has not derived an oral reference dose (RfD) or an inhalation reference concentration (RfC) for sulfur trioxide or sulfuric acid.

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TABLE 7-1. Regulations and Guidelines Applicable to Sulfur Trioxide and Sulfuric Acid

Agency	Description	Information	References
<u>INTERNATIONAL</u>			
IARC	Carcinogenic classification: sulfuric acid	Group 1 ^a	IARC 1992
<u>NATIONAL</u>			
Regulations:			
a. Air: OSHA	PEL TWA (8-hours) sulfuric acid	1 mg/m ³	OSHA 1998 (29 CFR 1910.1000)
b. Water: EPA	Hazardous substance under the Clean Federal Water Pollution Control Act Sec 311(b)(2)(A), sulfuric acid	Yes	EPA 1998a (40 CFR 116.4)
c. Food: EPA	Exempt from a tolerance for pesticide chemicals in or on raw agricultural commodities, sulfuric acid	Yes	EPA 1998b (40 CFR 180.1001)
	Exempt from the requirement of a tolerance when used in accordance with good agricultural practice as a herbicide in the production of garlic and onions and as a potato vine dessicant in the production of potatoes, sulfuric acid	Yes	EPA 1998c (40 CFR 180.1019)
d. Other: Consumer Product Safety Commission (CPSC)	Sulfuric acid and any consumer product containing free or chemically unneutralized sulfuric acid in a concentration of 10% or more must bear the word "poison" on its container	Yes	EPA 1998g (16 CFR 1500.129)
DOT	Forbidden for transport on passenger carrying aircraft or railcars sulfur trioxide sulfuric acid, spent	Yes	DOT 1998 (49 CFR 172.101)

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TABLE 7-1. Regulations and Guidelines Applicable to Sulfur Trioxide and Sulfuric Acid (*continued*)

Agency	Description	Information	References
<u>NATIONAL</u> (Cont.)			
	Domestic transportation labels, corrosive poison: sulfur trioxide, corrosive: sulfuric acid, sulfuric acid spent	Yes	DOT 1998 (49 CFR 172.101)
EPA	CERCLA reportable quantity Sulfur trioxide Sulfuric acid	100 pounds 1000 pounds	EPA 1998e (40 CFR 355 Appendix A) EPA 1998d (40 CFR 302.4)
	Extremely hazardous substance, TPQ: Sulfur trioxide Sulfuric acid	100 pounds 1000 pounds	EPA 1998e (40 CFR 355 Appendix A)
EPA-OSW	Designation of hazardous substance, sulfuric acid	Yes	EPA 1998a (40 CFR 116.4)
EPA-OTS	Toxic chemical release reporting: community-right-to-know, sulfuric acid	Yes	EPA 1998f (40 CFR 372.65)
Guidelines:			
a. Air:			
ACGIH	TLV TWA Sulfuric acid	1 mg/m ³	ACGIH 1998
	TLV STEL Sulfuric acid	3 mg/m ³	ACGIH 1998
	Carcinogen classification	A2 ^b	ACGIH 1998
NIOSH	REL TWA Sulfuric acid	1 mg/m ³	NIOSH 1997
<u>STATE</u> ^c			
Regulations:			
a. Air:			
Arizona	Acceptable ambient air concentrations for sulfur trioxides: (1-hour) (24-hour)	1300 µg/m ³ 365 µg/m ³	NATICH 1996
	Acceptable ambient air concentrations for sulfuric acid:		

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TABLE 7-1. Regulations and Guidelines Applicable to Sulfur Trioxide and Sulfuric Acid (*continued*)

Agency	Description	Information	References
STATE (Cont.)			
Arizona	(1-hour)	22.5 $\mu\text{g}/\text{m}^3$	NATICH 1996
	(24-hour)	7.5 $\mu\text{g}/\text{m}^3$	
Connecticut	(8-hour)	20 $\mu\text{g}/\text{m}^3$	CT DEP 1998
	(30-minute)	100 $\mu\text{g}/\text{m}^3$	
Idaho	(24-hour)	50 $\mu\text{g}/\text{m}^3$	ID DHW 1998
Kansas	(annual)	2.38 $\mu\text{g}/\text{m}^3$	NATICH 1996
Louisiana	(8-hour)	23.8 $\mu\text{g}/\text{m}^3$	LO DEQ 1998
Maine	(15-minute)	300 $\mu\text{g}/\text{m}^3$	NATICH 1996
	(24-hour)	17 $\mu\text{g}/\text{m}^3$	
Massachusetts	(24-hour)	2.72 $\mu\text{g}/\text{m}^3$	NATICH 1996
	(annual)	2.72 $\mu\text{g}/\text{m}^3$	
Nevada	(8-hour)	24 $\mu\text{g}/\text{m}^3$	NATICH 1996
North Carolina	(1-hour)	100 $\mu\text{g}/\text{m}^3$	NC DEHNR 1998
	(24-hour)	12 $\mu\text{g}/\text{m}^3$	
North Dakota	(1-hour)	30 $\mu\text{g}/\text{m}^3$	NATICH 1996
	(8-hour)	10 $\mu\text{g}/\text{m}^3$	
Oklahoma	(24-hour)	100 $\mu\text{g}/\text{m}^3$	NATICH 1996
South Carolina	(24-hour)	10 $\mu\text{g}/\text{m}^3$	SC DHEC 1998
Vermont	(24-hour)	23.8 $\mu\text{g}/\text{m}^3$	NATICH 1996
Virginia	(24-hour)	17 $\mu\text{g}/\text{m}^3$	NATICH 1996
Washington	(24-hour)	3.3 $\mu\text{g}/\text{m}^3$	WA DE 1998
Wisconsin	(24-hour)	24 $\mu\text{g}/\text{m}^3$	NATICH 1996

^aThe Working Group on the Evaluation of Carcinogenic Risks to Humans concluded that there is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic.

^bGroup A2: suspected human carcinogen

^cState regulations are not necessarily applied state-wide. For specific information as to the areas affected by the regulations refer to NATICH 1996.

ACGIH = American Conference of Governmental Industrial Hygienists; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; DOT = Department of Transportation; EPA = Environmental Protection Agency; FR = Federal Register; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Wastes; OTS = Office of Toxic Substances; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limit; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TPQ = Threshold Planning Quantity; TWA = Time-Weighted Average