

7. REGULATIONS AND ADVISORIES

Vanadium 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 1987c).

The international, national, and state regulations and guidelines regarding vanadium and its compounds in air, water, and other media are summarized in Table 7-1.

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Vanadium and Compounds

Agency	Description	Information	References
INTERNATIONAL			
WHO	TWA air quality guideline for vanadium (24-hr)	1 $\mu\text{g}/\text{m}^3$	WHO 1987
NATIONAL			
Regulations:			
a. Air:			
OSHA	PEL ceiling (transitional limits)		OSHA 1974 (29 CFR 1910.1000)
	Vanadium pentoxide (respirable dust)	0.5 mg/m^3	
	Vanadium pentoxide (fume)	0.1 mg/m^3	
	PEL TWA--8-hr (final rule limits)		OSHA 1989
	Vanadium pentoxide (respirable dust)	0.05 mg/m^3	
	Vanadium pentoxide (fume)	0.05 mg/m^3	
b. Water:			
EPA OWRS	NPDES Permit Testing Requirements; toxic pollutants and hazardous substances required to be identified by existing dischargers if expected to be present: vanadium ^a	Yes	EPA 1983 (40 CFR 122, Appendix D, Table V)
c. Other:			
DOT	DOT-IMO: Poison B; label: Poison		DOT 1980 (49 CFR 172.102)
	Ammonium metavanadate	Yes	
	Vanadium trioxide (dust)	Yes	
	Vanadium pentoxide (dust)	Yes	
	Vanadyl sulfate	Yes	
	DOT-Hazard: Corrosive material		DOT 1980 (49 CFR 172.101)
	Vanadium oxytrichloride	Yes	
	Vanadium tetrachloride	Yes	
EPA OERR	CERCLA reportable quantity		EPA 1985b (40 CFR 302.4); EPA 1986b (40 CFR 117.3)
	Ammonium metavanadate	1,000 pounds (454 kg)	
	Vanadium pentoxide	1,000 pounds (454 kg)	
	Vanadyl sulfate	1,000 pounds (454 kg)	
	Extremely hazardous substance TPQ		EPA 1987a (40 CFR 355, Appendix A)
	Vanadium pentoxide	100/10,000 pounds	EPA 1978 (40 CFR 116.4); EPA 1985b (40 CFR 302.4)
EPA OSW	Designation of (CERCLA) hazardous substances		EPA 1978 (40 CFR 116.4); EPA 1985b (40 CFR 302.4)
	Ammonium metavanadate	Yes	
	Vanadium pentoxide	Yes	
	Vanadyl sulfate	Yes	
	Listing as hazardous waste: Discarded commercial chemical products off-specifications species container residues, and spill residues thereof		EPA 1980 (40 CFR 261.33[e])
	Ammonium metavanadate	Yes	
	Vanadium pentoxide	Yes	
	Listing as hazardous waste constituents		EPA 1988 (40 CFR 261, Appendix VIII)
	Ammonium metavanadate	Yes	
	Vanadium pentoxide	Yes	
	Groundwater monitoring requirement		EPA 1987b (40 CFR 264, Appendix IX)
	Vanadium (total)	Yes	
	Toxic chemical release reporting; Community Right-to-Know (Proposed) vanadium (fume or dust)	Yes	EPA 1987c

7. REGULATIONS AND ADVISORIES

TABLE 7-1 (Continued)

Agency	Description	Information	References
NATIONAL (cont'd)			
OSHA	Meets criteria for proposed OSHA medical records rule		OSHA 1982
	Ammonium metavanadate	Yes	
	Isobutyl orthovanadate	Yes	
	Sodium metavanadate	Yes	
	Sodium tetravanadate	Yes	
	Vanadium ^a	Yes	
	Vanadium tetrachloride	Yes	
	Vanadium oxytrichloride	Yes	
	Vanadium pentoxide (dust)	Yes	
Guidelines:			
a. Air:			
ACGIH	TLV TWA		ACGIH 1986
	Vanadium pentoxide (dust and fume)	0.05 mg/m ³	
	REL Ceiling (15 min)		NIOSH 1985
	Vanadium compounds ^b	0.05 mg Vanadium/m ³	
	Vanadium pentoxide (dust and fume)	0.05 mg/m ³	
NIOSH	IDLH		NIOSH 1985
	Vanadium pentoxide (dust and fume)	70 mg/m ³	
b. Other:			
EPA	RfD (oral)		
	Vanadium pentoxide	9x10 ⁻³ mg/kg/day	IRIS 1989
STATE			
Regulations and Guidelines:			
a. Air:	Acceptable ambient air concentrations		NATICH 1988
	Vanadium		
Connecticut	(8-hr)	1.0000 µg/m ³	
Massachusetts	(24-hr)	0.1400 µg/m ³	
Nevada	(8-hr)	0.0010 mg/m ³	
	Vanadium pentoxide		
Massachusetts	(24-hr)	0.1400 µg/m ³	
North Dakota	(8-hr)	0.0005 mg/m ³	
Virginia	(24-hr)	0.8000 µg/m ³	

^aThe forms of vanadium regulated are not specified.

^bThe ceiling and time-weighted average values given for vanadium compounds by NIOSH (1977) reflect the equivalent vanadium concentrations, not concentrations for the compounds themselves.

ACGIH = American Conference of Governmental Industrial Hygienists; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; DOT = Department of Transportation; DOT-IMO = Department of Transportation/International Maritime Organisation; EPA = Environmental Protection Agency; IDLH = Immediately Dangerous to Life or Health Level; IRIS = Integrated Risk Information System; NATICH = National Air Toxics Information Clearinghouse; 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; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limit; RfD = Reference dose; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TPQ = Threshold Planning Quantity; TWA = Time-Weighted Average; WHO = World Health Organization

