

## 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 boron and its compounds by various national and state agencies. These values are summarized in Table 7-1.

## 7. REGULATIONS AND ADVISORIES

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

Agency	Description	Information	References
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	PEL TWA		OSHA 1989
	Boron oxide		(29 CFR
	Total dust	10 mg/m <sup>3</sup>	1910.1000)
	Respirable fraction	5 mg/m <sup>3</sup>	Table Z-1-A
	Sodium tetraborates	10 mg/m <sup>3</sup>	
	Ceiling		
	Boron tribromide	10 mg/m <sup>3</sup> (1 ppm)	
	Boron trifluoride	3 mg/m <sup>3</sup> (1 ppm)	
b. Water:			
EPA OWRS	General permits under NPDES	Yes	40 CFR 122,
	Boron, total		Appendix D,
			Table IV
c. Food:			
FDA	Food additive-modified hop extract		
	Boron	310 ppm	21 CFR 172.560
d. Other:			
EPA OERR	Reportable quantity (proposed)		EPA 1989b
	Boron trichloride	100 lbs	
	Boron trifluoride	100 lbs	
	Extremely Hazardous Substance TPQ		EPA 1987a
	Boron trichloride	500 lbs	(40 CFR 355)
	Boron trifluoride	500 lbs	
EPA OPP	Tolerances for pesticide chemicals on raw agricultural commodities		
	Boron	8 to 30 ppm	40 CFR 180.271
Guidelines:			
a. Air:			
ACGIH	TLV TWA		ACGIH 1986
	Sodium tetraborates		
	Anhydrous and pentahydrate	1 mg/m <sup>3</sup>	
	Decahydrate	5 mg/m <sup>3</sup>	
	Boron oxide	10 mg/m <sup>3</sup>	
	Ceiling		
	Boron tribromide	1 ppm (10 mg/m <sup>3</sup> )	
	Boron trifluoride	1 ppm (3 mg/m <sup>3</sup> )	
NIOSH	IDLH		NIOSH 1985b
	Boron trifluoride	100 ppm	
b. Water:			
EPA OWRS	Ambient Water Quality Criteria		EPA 1986b
	Long-term irrigation on sensitive crops	750 µg/L	
c. Other:			
EPA	Oral RfD		IRIS 1989
	Boron and Borates	9E-2 mg/kg/day	

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TABLE 7-1 (Continued)

Agency	Description	Information	References
<u>STATE</u>			
Regulations and Guidelines:			
a. Air:	Acceptable ambient air concentrations		NATICH 1989
Connecticut	Sodium tetraborates	20 $\mu\text{g}/\text{m}^3$ (8 hr) 100 $\mu\text{g}/\text{m}^3$ (8 hr)	
	Boron oxide	200 $\mu\text{g}/\text{m}^3$ (8 hr)	
	Boron tribromide	200 $\mu\text{g}/\text{m}^3$ (8 hr)	
	Boron trifluoride	0 $\mu\text{g}/\text{m}^3$ (8 hr)	
Nevada	Sodium tetraborates	2.4E-2 $\text{mg}/\text{m}^3$ (8 hr)	
	Boron oxide	2.38E-1 $\text{mg}/\text{m}^3$ (8 hr)	
	Boron tribromide	2.38E-1 $\text{mg}/\text{m}^3$ (8 hr)	
	Boron trifluoride	7.1E-2 $\text{mg}/\text{m}^3$ (8 hr)	
North Dakota	Sodium tetraborates	1.0E-2 $\text{mg}/\text{m}^3$ (8 hr) 5.0E-2 $\text{mg}/\text{m}^3$ (8 hr)	
	Boron oxide	1.0E-2 $\text{mg}/\text{m}^3$ (8 hr)	
	Boron tribromide	1.0E-1 $\text{mg}/\text{m}^3$ (8 hr)	
	Boron trifluoride	3.0E-2 $\text{mg}/\text{m}^3$ (8 hr)	
Virginia	Sodium tetraborates	16 $\mu\text{g}/\text{m}^3$ (24 hr)	
	Boron oxide	160 $\mu\text{g}/\text{m}^3$ (24 hr)	
	Boron tribromide	80 $\mu\text{g}/\text{m}^3$ (24 hr)	
	Boron trifluoride	25 $\mu\text{g}/\text{m}^3$ (24 hr)	

ACGIH = American Conference of Governmental Industrial Hygienists; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; IDLH = Immediately Dangerous to Life or Health Level; NIOSH = National Institute for Occupational Safety and Health; NPDES = National Pollutant Discharge Elimination System; OERR = Office of Emergency and Remedial Response; OPP = Office of Pesticide Products; OSHA = Occupational Safety and Health Administration; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; TPQ = Threshold Planning Quantity; TWA = Time-Weighted Average

