

**ANNEX A**

**TITLE 25. ENVIRONMENTAL PROTECTION  
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION  
SUBPART D. ENVIRONMENTAL HEALTH AND SAFETY  
ARTICLE VI. GENERAL HEALTH AND SAFETY  
CHAPTER 250. ADMINISTRATION OF LAND RECYCLING PROGRAM**

**Appendix A**

**Table 2 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Groundwater**

Regulated Substance	CASRN	Used Aquifers				Nonuse Aquifers							
		TDS ≤ 2500 mg/L		TDS > 2500 mg/L		R	NR						
		R	NR	R	NR								
* * * * *													
VANADIUM	7440-62-2	<b>[2.4] 170</b>	G	<b>[6.8] 490</b>	G	<b>[240] 17,000</b>	G	<b>[680] 49,000</b>	G	<b>[2,400] 170,000</b>	G	<b>[6,800] 490,000</b>	G
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All concentrations in µg/L (except asbestos)

M = Maximum Contaminant Level

H = Lifetime Health Advisory Level

SMCL = Secondary Maximum Contaminant Level

G = Ingestion

N = Inhalation

PA State MCL adopted as MSC for Copper and Lead

R = Residential

NR = Nonresidential

**Table 4 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil**  
**A. Direct Contact Numeric Values**

REGULATED SUBSTANCE	CASRN	Residential MSC 0-15 feet	Nonresidential MSCs			
			Surface Soil 0-2 feet		Subsurface Soil 2-15 feet	
* * * * *						
VANADIUM	7440-62-2	[15] <u>1,100</u>	G	[220] <u>16,000</u>	G	190,000 C
* * * * *						

All concentrations in mg/kg  
R—Residential  
NR—Non-Residential  
G—Ingestion  
N—Inhalation  
C—Cap  
U—UBK Model  
S—SEGH Model  
NA—Not Applicable

**Table 4 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil**  
**B. Soil to Groundwater Numeric Values<sup>1</sup>**

REGULATED SUBSTANCE	CASRN	Used Aquifers								Nonuse Aquifers				Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L				TDS > 2500 mg/L				R		NR		
		R		NR		R		NR		R		NR		
		100 X GW MSC	Generic Value	100 X GW MSC	Generic Value	100 X GW MSC	Generic Value	100 X GW MSC	Generic Value	100 X GW MSC	Generic Value	100 X GW MSC	Generic Value	
* * * * *														
VANADIUM	7440-62-2	[0.24] <u>17</u>	[240] <u>17,000</u>	[0.68] <u>49</u>	[680] <u>49,000</u>	[24] <u>1,700</u>	[24,000] <u>190,000</u>	[68] <u>4,900</u>	[68,000] <u>190,000</u>	[240] <u>17,000</u>	190,000	[680] <u>49,000</u>	190,000	5
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<sup>1</sup>For other options see Section 250.308  
 All concentrations in mg/kg  
 R—Residential  
 NR—Non-Residential  
 NA—Not Applicable

**Table 5 – Physical and Toxicological Properties  
B. Inorganic Regulated Substances**

Regulated Substance	CAS	RfDo (mg/kg-d)	CSFo (mg/kg-d) <sup>-1</sup>	RfCi (mg/m <sup>3</sup> )	IUR (ug/m <sup>3</sup> ) <sup>-1</sup>	Kd
* * * * *						
VANADIUM	7440-62-2	[0.00007] <u>0.005</u>	[P] <u>Id</u>	0.0001	D	1,000
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Toxicity Value Sources:

C = California EPA Cancer Potency Factor

D = ATSDR Minimal Risk Level

H = Health Effects Assessment Summary Table (HEAST)

I = Integrated Risk Information System (IRIS)

P = EPA Provisional Peer-Reviewed Toxicity Value

X = EPA Provisional Peer-Reviewed Toxicity Value Appendix

**Id = IRIS derived – Value derived from the IRIS oral RfD for Vanadium Pentoxide (0.009 mg/kg-day). Vanadium constitutes 56% of the molecular weight of the Vanadium Pentoxide molecule. 0.009 mg/kg-day x 0.56 = 0.005 mg/kg-day.**