



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Environmental Cleanup & Brownfields

Proposed Rulemaking: Administration of the Land Recycling Program – Vanadium MSC

**Environmental Quality Board Meeting
May 18, 2022**

Tom Wolf, Governor

Patrick McDonnell, Secretary

Overview

- The vanadium toxicity values and associated MSCs should reflect the most reliable, contemporary scientific data available.
- Update the toxicity value for vanadium
- Update Medium-Specific Concentrations (MSC) under Statewide Health Standard

Overview

Sources of Toxicity Information to Set Toxicity Values

For Site Specific Standards:

Tier 1	Integrated Risk Information System (IRIS)
Tier 2	EPA Provisional Peer-Reviewed Toxicity Values (PPRTV)
Tier 3	Other Sources

25 Pa. Code § 250.605(a)

Overview

Vanadium Toxicity Value

- Current toxicity value is derived from a “Tier 2 Source”
- High uncertainty associated with existing value
- Residential direct contact value is similar to naturally occurring vanadium levels in soil

What is Proposed?

Alternative Vanadium Toxicity Value

- Proposed value is derived from a “Tier 1 Source”
 - EPA’s Integrated Risk Information System (IRIS)
- Incorporates a molecular weight conversion
- EPA endorsed the approach of using molecular weight conversion for regional screening level

What is Proposed?

Alternative Vanadium Toxicity Value

- IRIS-based oral reference dose = 0.005 mg/kg-d*
- Compared to: PPRTV-based oral reference dose = 0.00007 mg/kg-d**

*Vanadium pentoxide (proposed)

** sodium metavanadate (existing)

What is Proposed?

Corresponding Updates to Vanadium MSCs

- Vanadium toxicity value update prompts updates to groundwater and soil MSCs
- Values aligned with exposure risk and incorporate the most contemporary scientific information

What is Proposed?

Groundwater Used Aquifer TDS \leq 2500 mg/L Values

- Residential value increasing from 2.4 $\mu\text{g/L}$ to 170 $\mu\text{g/L}$
- Nonresidential value increasing from 6.8 $\mu\text{g/L}$ to 490 $\mu\text{g/L}$

What is Proposed?

Direct Contact Soil Values

- Residential value increasing from 15 mg/kg to 1,100 mg/kg
- Nonresidential surface soil value increasing from 220 mg/kg to 16,000 mg/kg

What is Proposed?

Soil to Groundwater TDS \leq 2500 mg/L Values

- Residential 100 X GW value increasing from 0.24 mg/kg to 17 mg/kg
- Residential generic value increasing from 240 mg/kg to 17,000 mg/kg

What is Proposed?

Soil to Groundwater TDS \leq 2500 mg/L Values

- Nonresidential 100 X GW value increasing from 0.68 mg/kg to 49 mg/kg
- Nonresidential generic value increasing from 680 mg/kg to 49,000 mg/kg

Affected Parties

- Any person or business who remediates soil and groundwater vanadium contamination pursuant to the standards established by the Land Recycling Act and the Chapter 250 regulations.
- Individuals potentially exposed to soil and groundwater contaminated from vanadium releases.

Advisory Committee

- DEP presented the proposed rule to the Cleanup Standards Scientific Advisory Board (CSSAB) on October 4, 2021.
- The CSSAB unanimously supported the proposed rule.

Recommendation

DEP recommends the Board adopt this proposed rulemaking and publish in the *Pennsylvania Bulletin* for a 30-day public comment period.



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Environmental Cleanup & Brownfields

Krishnan Ramamurthy

Deputy Secretary, Waste, Air, Radiation, Remediation

kramamurth@pa.gov

Troy Conrad

Bureau Director, Environmental Cleanup and
Brownfields

tconrad@pa.gov

Nikolina Smith

Assistant Counsel, Bureau of Regulatory Counsel

nikosmith@pa.gov