



Bureau of Environmental Cleanup & Brownfields

Final-Form Rulemaking: Administration of the Land Recycling Program Vanadium MSC Rule

**Environmental Quality Board Meeting
July 11, 2023**

Josh Shapiro, Governor

Richard Negrin, Secretary

Overview

- This rulemaking amends Land Recycling Program regulations to update the vanadium toxicity value and the corresponding Medium-Specific Concentrations (MSCs) under the Statewide Health Standard.
- The vanadium toxicity values and associated MSCs should reflect the most reliable, contemporary scientific data available.

Background

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)

Background

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

Proposed Rulemaking

Alternative Vanadium Toxicity Value

- Proposed value 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

Proposed Rulemaking

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)

Proposed Rulemaking

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

Proposed Rulemaking

Medium Specific Concentration	Current	Proposed
Groundwater Used Aquifer TDS \leq 2500 mg/L residential value	2.4 $\mu\text{g/L}$	170 $\mu\text{g/L}$
Groundwater Used Aquifer TDS \leq 2500 mg/L nonresidential value	6.8 $\mu\text{g/L}$	490 $\mu\text{g/L}$
Direct Contact Soil Residential Value	15 mg/kg	1,100 mg/kg
Direct Contact Soil Nonresidential Value	220 mg/kg	16,000 mg/kg
Soil to Groundwater TDS \leq 2500 mg/L Residential 100 X GW value	0.24 mg/kg	17 mg/kg
Soil to Groundwater TDS \leq 2500 mg/L Residential generic value	240 mg/kg	17,000 mg/kg
Soil to Groundwater TDS \leq 2500 mg/L Nonresidential 100 X GW value	0.68 mg/kg	49 mg/kg
Soil to Groundwater TDS \leq 2500 mg/L Nonresidential generic value	680 mg/kg	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.

Public Comments

- The Board adopted the proposed rulemaking on May 18, 2022.
- The proposed rulemaking was published in the *Pennsylvania Bulletin* on July 30, 2022.
- The Board received one comment on the proposed rulemaking.
- The Independent Regulatory Review Commission (IRRC) submitted no comments.

Public Comments

- **Comment:** Will the new vanadium MSC supersede the Bureau of Waste Management’s interim final guidance, “Utilizing Published Data in Performing a Background Demonstration and Equivalent Site Evaluation for Naturally Occurring Vanadium”?
- **Response:** No, the interim final guidance will be rescinded when this final-form rulemaking is published in the *Pennsylvania Bulletin* as it will no longer be necessary.

Final Rulemaking

- No changes were made from the proposed rulemaking to the final rulemaking.
- The Cleanup Standards Scientific Advisory Board reviewed the final rulemaking on March 15, 2023, and supported finalizing the proposed amendments.

Recommendation

The Department recommends the Board adopt the Administration of the Land Recycling Program Vanadium MSC final-form rulemaking.



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