

TCLP INVESTIGATIONS: THE DEVELOPMENT OF A RAPID SCREENING FIELD ASSESSMENT TEST¹

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Abstract: A common procedure to determine the metal concentration mine waste piles is the Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 developed by the Environmental Protection Agency (EPA). This test takes considerable time and sample amount hindering the remediation process by slowing it down. The proposed Citizen's TCLP is a modified version of the EPA TCLP that will utilize everyday compounds such as baking soda, vinegar, and bottled water. With a reaction time of 1 hour and teaspoons of contaminated sediment needed, this scaled-down version of the TCLP may provide a rapid screening assessment tool that will speed up remediation decisions.

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Bibliography

- Bazin, A.T.R. Wildeman, and N. Heflin, 2003, Aquatic toxicity assessment of two abandoned mine sites in the Lake City Mineral District, Colorado. Tailings and Mine Waste '03, A.A. Balkema Publishers, Lisse, Netherlands, pp. 29-36.
- Clayton, L. D., and T. R. Wildeman, 1998, Processes contributing to the removal of manganese from mine drainage by an algal mixture. In: Proceedings of 15th Annual Meeting of American Society for Surface Mining and Reclamation, pp.192-201.
- US Env.. Protection Agency, 2002, Test Methods for Evaluating Solid Wastes, Physical and Chemical Methods, <http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm>
- Hageman, P. L., P. L. Briggs, 2000. A Simple Field Leach Test for Rapid Screening and Qualitative Characterization of Mine Waste Dump Material on Abandoned Mine Lands. Proceedings from the 5th International Conference on Acid Rock Drainage, Society For Mining, Metallurgy, and Exploration, Littleton, CO, pp.1463-1476, 2000.
- Hageman, P.L., 2004. Use of Short-Term (5-Minute) and Long-Term (18-Hour)Leaching Tests to Characterize, Fingerprint, and Rank Mine-Waste Material from Historical Mines in the Deer Creek, Snake River, and Clear Creek Watersheds in and around the Montezuma Mining District, Colorado, U.S. Geological Survey Scientific Investigations Report 2004-5104, 37 pp.
- Hageman, P.L., K. Smith, T.R. Wildeman, and J.F. Ranville, 2005, Comparison of mine waste assessment methods at the Rattler Mine Site, Virginia Canyon, Colorado. In Proceedings of the 23rd National Conference of the. American Society for Surface Mining and Reclamation, this volume.
- Heflin, N., T.R. Wildeman, and R. Abel, 2004. Characterization and Contamination Assessment of Mine Waste Piles and Sediment Materials in Gilpin County, Colorado. Society for Mining, Metallurgy and Exploration, Preprints for Annual Meeting, No. 04-052.