



Standard Test Method for Column Percolation Extraction of Mine Rock by the Meteoric Water Mobility Procedure¹

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1. Scope

1.1 This test method provides a procedure for the column percolation extraction of mine rock in order to determine the potential for dissolution and mobility of certain constituents by meteoric water.

1.2 This test method is intended to describe the procedure for performing column percolation extractions only. It does not describe all types of sampling and analytical requirements that may be associated with its application.

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D1193 Specification for Reagent Water

D1293 Test Methods for pH of Water

D6234 Test Method for Shake Extraction of Mining Waste by the Synthetic Precipitation Leaching Procedure

D7237 Test Method for Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection

E50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials

E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials

E389 Test Method for Particle Size or Screen Analysis at No. 4 (4.75-mm) Sieve and Coarser for Metal-Bearing Ores and Related Materials

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

E877 Practice for Sampling and Sample Preparation of Iron Ores and Related Materials for Determination of Chemical Composition and Physical Properties

E882 Guide for Accountability and Quality Control in the Chemical Analysis Laboratory

E1601 Practice for Conducting an Interlaboratory Study to Evaluate the Performance of an Analytical Method

2.2 Other References:

Meteoric Water Mobility Procedure, Bureau of Mining Regulation and Reclamation, Nevada Division of Environmental Protection, 9/19/90

Standard Methods for the Examination of Water and Wastewater, 18th edition, APHA/AWWA/WEF, 1992

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method, see Terminology E135.

3.1.2 *meteoric water*—rainfall that has the potential to contact materials and mobilize soluble constituents from mine rock at a mining or mineral processing site.

3.1.3 *mine rock*—ore, waste rock or overburden excavated in order to recover metals or minerals during mining operations or coarse processed ore such as heap leach spoils.

4. Summary of Test Method

4.1 The test material is placed in a plastic column and contacted with water to produce an effluent containing an equal weight of solution to dry solids during a leaching period of up to 48 h. The extract is collected and preserved for analysis of inorganic constituents.

5. Significance and Use

5.1 This test method is intended as a means for obtaining an extract from mine rock samples. The extract may be used to estimate the final pH and release of certain constituents of the test sample under the laboratory conditions described in this test method.

¹ This test method is under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.02 on Ores, Concentrates, and Related Metallurgical Materials.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.