

Partial List of Soil Mechanics Tests

Test	Information Provided	Results Used to Determine
1. Mechanical Analysis (M.A.) ASTM D-422	Gradation of soil particles larger than #200 sieve	a. Unified soil classification. b. Need for pond linings. c. Acceptable materials for pond linings. d. Foundation drain and bedding design.
2. Hydrometer Analysis ASTM D-422	Gradation of soil particles smaller than #200 sieve	a. Need for pond linings. b. Acceptable materials for pond linings. c. Foundation drain design.
3. Atterberg Limits ASTM D-4318	Liquid limit (LL) and plastic index (PI)	a. Unified soil classification. b. Acceptable material for pond linings.
4. Compaction Test ASTM D-698 or D-1557	Minimum dry density and optimum moisture content	a. Determining required densities for the job prior to construction. b. Determining adequacy of compaction during construction.
5. Resistivity Test ASTM G-187 <i>*For NRCS SML requests indicate Soil Paste and Electrode Cup method (Ag Handbook 60).</i>	Soil resistivity (ohms/cm)	Requirements for corrosion control (cathodic protection) for principal spillways.
6. pH Test ASTM D-4972	pH of soil	Requirements for corrosion control (cathodic protection) for principal spillways. Requirements for lime in establishing vegetation.
7. Crumb Test ASTM D-6572	Dispersive soils	a. Embankment design. b. Acceptable pond linings.
8. Pinhole Test ASTM D-4647	Dispersive soils (more accurate than crumb test)	a. Embankment design. b. Acceptable pond linings.
9. Soluble Salt Test ASTM D-4542	Aid in determination of dispersive soils	a. Embankment design. b. Acceptable pond linings.
10. Permeability Test ASTM D-5084	Permeability of soil in either the undisturbed or compacted state	Used to determine adequacy of material for pond linings both before and after construction.
11. Bulk Specific Gravity Rock Riprap ASTM C-127	Specific gravity	Adequacy of rock.
12. Soundness Rock Riprap ASTM C-88 modified by WCS-9	Rock soundness	Adequacy of rock.
13. Double Hydrometer Test ASTM D-4221	Dispersive soils (more accurate than crumb test)	a. Embankment design. b. Acceptable pond linings.
14. Absorption ASTM C-127	Rock ability to absorb water	Adequacy of rock.
15. Soil Water Content ASTM D-2216	Moisture content of soil mass	Relative moisture of sample to design.

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