



Designation: D 5890 – 012

Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners¹

This standard is issued under the fixed designation D 5890; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers an index method that enables the evaluation of swelling properties of a clay mineral in reagent water for estimation of its usefulness for permeability or hydraulic conductivity reduction in geosynthetic clay liners (GCL).

1.2 It is adapted from United States Pharmacopeia (USP) test method for bentonite.

1.3 Powdered clay mineral is tested after drying to constant weight at $105 \pm 5^\circ\text{C}$; granular clay mineral should be ground to a 100 % passing a 100 mesh U.S. Standard Sieve with a minimum of 65 % passing a 200 mesh U.S. Standard Sieve. The bentonite passing the 100 mesh U.S. Standard Sieve is used for testing after drying to constant weight at $105 \pm 5^\circ\text{C}$.

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

1.5 *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.* Specific precautionary statements are given in Section 7.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1193 Specification for Reagent Water²

¹ This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.04 on Geosynthetic Clay Liners.

Current edition approved Aug. 10, 2004². Published November 2004. ~~Originally published as D 5890 - 95. Last previous edition D 5890 - 95⁰¹.~~