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Geosynthetic barriers - Determination of permeability to liquids

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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EUROPEAN STANDARD

EN 14150

NORME EUROPÉENNE

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English Version

Geosynthetic barriers - Determination of permeability to liquids

Geomembranes - Détermination de la perméabilité aux liquides

Geosynthetische Dichtungsbahnen - Bestimmung der Flüssigkeitsdurchlässigkeit

This European Standard was approved by CEN on 29 April 2019.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 14150:2019) has been prepared by Technical Committee CEN/TC 189 “Geosynthetics”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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This document supersedes EN 14150:2006.

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1 Scope

This document specifies a method for measuring the steady-state liquid flow through a geosynthetic barrier, used to contain liquids in long-term applications.

The test method and described apparatus allow the measurement of flows accurately down to 10^{-6} $\text{m}^3/\text{m}^2/\text{day}$. In particular circumstances where testing indicates that values obtained for a geosynthetic barrier lie below the threshold of sensitivity of this test method, then the value of liquid flow is declared as being less than 10^{-6} $\text{m}^3/\text{m}^2/\text{day}$.

Due to its long duration, this test method is not suitable for production control testing.

Clay geosynthetic barriers cannot be tested with this apparatus.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

A differential hydraulic pressure is applied between the two sides of a geosynthetic barrier. It is kept constant during the test at 100 kPa, the upstream pressure being set to 150 kPa and the downstream pressure to 50 kPa.

The flow through the geosynthetic barrier is calculated from the variations of the liquid volume measured on both sides of the geosynthetic barrier.

NOTE This test is conducted with water but can also be performed with other liquids, providing chemical resistance and compatibility of the apparatus is ensured.

In the light of laboratory experience, it is recommended that the test procedural improvement and equipment enhancement of the sensitivity threshold of the test procedure be reviewed and the applicability of the test procedure to the product permeability assessed at regular intervals, not exceeding 12 months.

Other pressure levels may be applied with the agreement of all concerned persons or parties. In this case it is recommended that the pressure levels applied be described in the test report

5 Apparatus

5.1 Cell

The two-part cell (see Figure 1) shall resist oxidation and hydraulic pressure applied along the test. In each part of the cell, a cavity allows to apply a hydraulic pressure. A porous disc resisting oxidation placed in the downstream cavity prevents deformations of the geosynthetic barrier.