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Geotextiles and geotextile-related products — Determination of water flow capacity in their plane —

Part 2: Performance test

Géotextiles et produits apparentés — Détermination de la capacité de débit dans leur plan —

Partie 2: Essai de performance

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 221, *Geosynthetics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 189, *Geosynthetics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 12958-2, together with ISO 12958-1, cancels and replaces ISO 12958:2010, which has been technically revised.

A list of all parts in the ISO 12958 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The results obtained under this test procedure do not compare with those obtained under ISO 12958-1, even if some of the test conditions are similar.

Many geosynthetic products can creep under constant load, i.e. see their thickness diminish over time, which can influence their in-plane water flow capacity. Although a seating time typically greater than the one used in ISO 12958-1 is used, this test does not cover all creep-related issues for drainage geocomposites. Assessment of long-term flow capacity involves further considerations.

This procedure can be useful to assess the effect of geotextile intrusion into the drainage core on the transmissivity of a drainage product, using soil from a particular project as a stress-distribution layer in contact with the geotextile.

Other test methods can be more suitable for the characterization of particular drainage products, such as ISO 18325 for prefabricated vertical drains. It is the responsibility of the user to assess the limit of this test procedure and select the appropriate test method, test conditions or both that adequately reflect the particular needs for their project.

In this test method, the flow capacity of the product in a given direction is evaluated considering soil confinement, service load and service hydraulic gradient, as well as primary creep. However:

— For some products and designs, ensuring the product performance may require controlling the flow capacity of the product in both directions, for example for products with discrete draining elements, where the flow capacity significantly depends on the direction of flow. For these situations, the test shall be performed in both directions.

— Other field-related issues affect material long-term performance, such as secondary or tertiary creep, chemical or biological clogging, chemical resistance and durability, installation and backfilling. These issues are covered in separate standards and it is essential that they be considered while designing with geosynthetics.

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Geotextiles and geotextile-related products — Determination of water flow capacity in their plane —

Part 2: Performance test

1 Scope

This document specifies a method for determining the constant-head water flow capacity within the plane of a geotextile or geotextile-related product, using boundary materials and test conditions of interest. A standard series of test conditions are proposed, involving soil confinement, low hydraulic gradients, seating times and an array of normal loads.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2854, *Statistical interpretation of data — Techniques of estimation and tests relating to means and variances*

ISO 5813, *Water quality — Determination of dissolved oxygen — Iodometric method*

ISO 9862, *Geosynthetics — Sampling and preparation of test specimens*

ISO 9863-1, *Geosynthetics — Determination of thickness at specified pressures — Part 1: Single layers*

ISO 10318-1, *Geosynthetics — Part 1: Terms and definitions*

3 Terms and definitions

For the purposes of this document, terms and definitions in ISO 10318-1 and the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
normal compressive stress
σ
compressive stress normal to the plane of the geotextile or geotextile-related product, expressed in kilopascals [kPa]

3.2
in-plane flow
Q
fluid flow within the geotextile or geotextile-related product and parallel to its plane, expressed in litres per second [l/s]

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