

Geotextiles and geotextile-related products - Screening test method for determining the resistance to hydrolysis in water

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EUROPEAN STANDARD

**EN 12447**

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN 12447:2001

English Version

**Geotextiles and geotextile-related products - Screening  
test method for determining the resistance to hydrolysis in  
water**

Géotextiles et produits apparentés - Méthode d'essai  
sélective pour la détermination de la résistance à  
l'hydrolyse dans l'eau

Geotextilien und geotextilverwandte Produkte -  
Auswahlprüfverfahren zur Bestimmung der  
Hydrolysebeständigkeit in Wasser

This European Standard was approved by CEN on 18 July 2021.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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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## European foreword

This document (EN 12447:2021) 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of an identical text or by endorsement, at the latest by March 2022, and conflicting national standards shall be withdrawn at the latest by March 2022.

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.

This document supersedes EN 12447:2001.

In comparison with the previous edition, the following technical modifications have been made:

- test temperature has been reduced;
- the exposure of the control specimen has been extended to 6 h;
- tables with test durations have been added.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

This document describes a screening test method to establish a minimum acceptance level of resistance of geotextiles and geotextile-related products to soil moisture.

In certain polymers moisture leads to hydrolysis throughout the thickness of the fibre (internal hydrolysis) but the rate of degradation is such that over short periods it is only measurable at elevated temperatures, e.g. by immersion in hot water.

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## 1 Scope

This document specifies a screening test method for determining the resistance of geotextiles and geotextile-related products to hydrolysis by exposing test specimens to water at elevated temperatures, followed by an evaluation of the changes in properties resulting from such exposure. It is intended as a means of establishing a minimum acceptable level of durability.

The tests described in this document do not allow the determination of reduction factors. The tests described in this document are screening tests to show the ability of a product to serve for a certain time. The reference strength and retained strength of products investigated in this document need to be determined in the same way in accordance with EN 12226.

The test is applicable to any geotextile and geotextile-related product susceptible to hydrolysis, in particular polyester and polyamide based materials, and in addition to the yarns from which these geotextiles are made.

This method is not intended for determining the resistance of geotextiles to hydrolysis under highly acid or alkaline conditions.

**NOTE** Performance tests to predict long-term lifetime or to compare products of different polymers or of similar polymers with differing structures can be based on the same method but with a wider range of temperatures and durations.

## 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.

EN 12226, *Geosynthetics - General tests for evaluation following durability testing*

EN ISO 2062, *Textiles - Yarns from packages - Determination of single-end breaking force and elongation at break using constant rate of extension (CRE) tester (ISO 2062)*

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696)*

## 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 <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

## 4 Principle

Both test and control specimens are immersed in hot water for specified durations and at a specified temperature. The properties of the specimens are determined after immersion.

Both the machine and cross machine direction shall be tested unless otherwise agreed.

Coated materials shall be tested without the coating and manufacturers shall ensure that the degradation of the coating will not attack or have any negative influence on the degradation of the yarns.