



National Standards Authority of Ireland

IRISH STANDARD

**I.S. EN 13493:2005**

ICS 91.100.50  
59.080.70

**GEOSYNTHETIC BARRIERS -  
CHARACTERISTICS REQUIRED FOR USE IN  
THE CONSTRUCTION OF SOLID WASTE  
STORAGE AND DISPOSAL SITES**

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EUROPEAN STANDARD

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English version

## Geosynthetic barriers - Characteristics required for use in the construction of solid waste storage and disposal sites

Géomembranes - Géosynthétiques bentonitiques -  
Caractéristiques requises pour l'utilisation dans la  
construction des ouvrages de stockage et d'enfouissement  
de déchets solides

Geosynthetische Dichtungsbahnen - Eigenschaften, die für  
die Anwendung beim Bau von Deponien und  
Zwischenlagern für feste Abfallstoffe erforderlich sind

This European Standard was approved by CEN on 25 March 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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## **Foreword**

This document (EN 13493:2005) has been prepared by Technical Committee CEN/TC 189 “Geosynthetics”, the secretariat of which is held by IBN/BIN.

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of an identical text or by endorsement, at the latest by November 2005, and conflicting national standards shall be withdrawn at the latest by February 2007.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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

## EN 13493:2005 (E)

### Introduction

This European Standard allows manufacturers to describe geosynthetic barriers on the basis of declared values for characteristics relevant to the intended use and if tested to the specified method. It also includes procedures for evaluation of conformity and factory production control.

This European Standard can also be used by designers, end-users and other interested parties as a tool to define relevant and appropriate characteristics for specifications and on-site quality control. It should be emphasised however that not all characteristics and test methods quoted in this standard are suitable for the purpose of on-site quality control.

Tests for some non-mandated characteristics are still under study and will be included when the standard is revised.

The term "product" used in this standard refers to a geosynthetic barrier, including polymeric geosynthetic barriers, clay geosynthetic barriers and bituminous geosynthetic barriers.

This European Standard is part of a group of standards, addressing the requirements for geosynthetic barriers when used in a specific application.

Particular application cases can contain requirements about additional properties and - preferably standardised - test methods, if they are technically relevant and not conflicting with European Standards.

The design life of the product should be determined, since its function may be temporary, as a construction expediency, or permanent, for the lifetime of the structure.

## 1 Scope

This European Standard specifies the relevant characteristics of geosynthetic barriers, including polymeric geosynthetic barriers, clay geosynthetic barriers and bituminous geosynthetic barriers, when used as fluid barriers in the construction of solid waste storage and disposal sites, and the appropriate test methods to determine these characteristics.

The intended use of these products is to control the leakage of fluids through the construction.

This document is not applicable to geotextiles or geotextile-related products.

This document provides for the evaluation of conformity of the product to this document.

This document defines requirements to be met by manufacturers and distributors with regard to the presentation of product properties.

## 2 Normative references

The following referenced documents are indispensable for the application 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 495-5, *Flexible sheets for waterproofing – Determination of foldability at low temperature – Part 5: Plastic and rubber sheets for roof waterproofing*

EN 1109, *Flexible sheets for waterproofing – Bitumen sheets for roof waterproofing – Determination of flexibility at low temperature*

EN 1849-1, *Flexible sheets for waterproofing – Determination of thickness and mass per unit area – Part 1: Bitumen sheets for roof waterproofing*

EN 1849-2, *Flexible sheets for waterproofing – Determination of thickness and mass per unit area – Part 2: Plastic and rubber sheets for roof waterproofing*

EN 12224, *Geotextiles and geotextile-related products – Determination of the resistance to weathering*

EN 12225, *Geotextiles and geotextile-related products – Method for determining the microbiological resistance by a soil burial test*

EN 12226, *Geotextiles and geotextile-related products – General tests for evaluation following durability testing*

EN 12310-1, *Flexible sheets for waterproofing – Part 1: Bitumen sheets for waterproofing – Determination of resistance to tearing (nail shank)*

EN 12311-1, *Flexible sheets for waterproofing – Part 1: Bitumen sheets for roof waterproofing – Determination of tensile properties*

EN 13361, *Geosynthetic barriers – Characteristics required for use in the construction of reservoirs and dams*

EN 13362:2005, *Geosynthetic barriers – Characteristics required for use in the construction of canals*

EN 13491, *Geosynthetic barriers – Characteristics required for use as a fluid barrier in the construction of tunnels and underground structures*

EN 13492, *Geosynthetic barriers – Characteristics required for use in construction of liquid waste disposal sites, transfer stations or secondary containment*

prEN 14150:2001, *Geosynthetic barriers – Determination of permeability to liquids*

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