



BSI Standards Publication

**Geosynthetic barriers - Characteristics required
for use in the construction of reservoirs and dams**

National foreword

This British Standard is the UK implementation of EN 13361:2018. It supersedes BS EN 13361:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/553, Geosynthetics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Geosynthetic barriers - Characteristics required for use in the construction of reservoirs and dams

Géomembranes et géosynthétiques bentonitiques
- Caractéristiques requises pour l'utilisation dans
la construction des réservoirs et des barrages

Geosynthetische Dichtungsbahnen - Eigenschaften,
die für die Anwendung beim Bau von
Rückhaltebecken und Staudämmen erforderlich sind

This European Standard was approved by CEN on 23 October 2017.

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Contents

Page

European foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms, definitions and abbreviations	8
3.1 Terms and definitions	8
3.2 Abbreviations	9
4 Characteristics and corresponding methods of test	9
4.1 General	9
4.2 Types of application	10
4.2.1 General	10
4.2.2 Application 1: “covered in service”	10
4.2.3 Application 2: “not covered in service”	11
4.3 Relevant characteristics	13
4.4 Characteristics relevant to specific conditions of use	19
4.4.1 General	19
4.4.2 Burst strength and elongation	19
4.4.3 Tear strength	19
4.4.4 Friction characteristics (direct shear and inclined plane tests)	19
4.4.5 Low temperature behaviour	19
4.4.6 Weathering	20
4.4.7 Chemical resistance	20
4.4.8 Resistance to wetting and drying	20
4.4.9 Freeze–thaw cycle resistance	20
4.4.10 Resistance to root penetration	20
4.5 Release of dangerous substances	20
5 Assessment and verification of constancy of performance (AVCP)	20
5.1 General	20
5.2 Type testing	21
5.2.1 General	21
5.2.2 Test samples, testing and compliance criteria	21
5.2.3 Test reports	22
5.2.4 Shared other party results	22
5.2.5 Cascading determination of the product type results	23
5.3 Factory production control (FPC)	24
5.3.1 General	24
5.3.2 Requirements	24
5.3.3 Product specific requirements	28
5.3.4 Initial inspection of factory and of FPC	29
5.3.5 Continuous surveillance of FPC	29
5.3.6 Procedure for modifications	29
5.3.7 One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity	29
Annex A (normative) Durability of geosynthetic barriers	31
Annex ZA (informative) Relationship of this European Standard with Regulation (EU) No. 305/2011	50
Bibliography	53

European foreword

This document (EN 13361:2018) has been prepared by Technical Committee CEN/TC 189 “Geosynthetics”, the secretariat of which is held by NBN.

This document supersedes EN 13361:2013.

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 September 2018, 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 [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

For relationship with Regulation (EU) No 305/2011, see informative [Annex ZA](#), which is an integral part of this document.

The main changes with respect to the previous edition are listed below:

- the list of normative references has been updated;
- in [3.1](#) three terms have been added;
- in [3.2](#) list of abbreviations has been updated;
- in [4.3](#), [Table 1](#), has been modified to comply with the modified mandate M/386 (inclusion of elongation in separation and filtration functions) and has been technically revised, all H-coded characteristics have been replaced by “A”;
- figures and keys have been revised;
- [Clause 5](#) “Evaluation of conformity” has been superseded by new [Clause 5](#) “Assessment and verification of constancy of performance (AVCP)”
- [Annex A](#) “Factory production control – Factory production control scheme” has been deleted;
- former Annex B “Durability” becomes [Annex A](#), which has been totally revised;
- [Annex ZA](#) has been updated according to new template to fulfil requirements of CPR, also examples for CE-marking have been deleted.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document 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 assessment and verification of constancy of performance (AVCP) including the factory production control. This document can also be used by designers, end-users and other interested parties as a tool to define relevant and appropriate characteristics for specifications. 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 document refers to a geosynthetic barrier, including polymeric geosynthetic barriers, clay geosynthetic barriers and bituminous geosynthetic barriers.

This document 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 standardized – 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 construction expediency, or permanent, for the lifetime of the structure.

1 Scope

This document specifies the characteristics of geosynthetic barriers, including polymeric geosynthetic barriers, clay geosynthetic barriers and bituminous geosynthetic barriers, when used as fluid barriers and separation layer for water, in the construction of reservoirs and dams, and the appropriate test methods to determine these characteristics.

The intended use of these products is to control the leakage of potable, fresh or saline water through the construction.

This document is not applicable to geotextiles or geotextile-related products, as defined in EN ISO 10318-1.

This document provides for the assessment and verification of constancy of performance (AVCP) of the product to this European Standard including factory production control procedures.

This document defines characteristics to be considered with regard to the presentation of performance.

NOTE Where potable water is or can be in direct contact with the product, other relevant standards, requirements and/or regulations can be considered for the design.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 495-5:2013, *Flexible sheets for waterproofing - Determination of foldability at low temperature - Part 5: Plastic and rubber sheets for roof waterproofing*

EN 1109:2013, *Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of flexibility at low temperature*

EN 1296:2000, *Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roofing - Method of artificial ageing by long term exposure to elevated temperature*

EN 1849-1:1999, *Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 1: Bitumen sheets for roof waterproofing*

EN 1849-2:2009, *Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastic and rubber sheets*

EN 12224:2000, *Geotextiles and geotextile-related products - Determination of the resistance to weathering*

EN 12225:2000, *Geotextiles and geotextile-related products - Method for determining the microbiological resistance by a soil burial test*

EN 12226:2012, *Geosynthetics - General tests for evaluation following durability testing*

EN 12310-1:1999, *Flexible sheets for waterproofing - Part 1: Bitumen sheets for waterproofing - Determination of resistance to tearing (nail shank)*

EN 12311-1:1999, *Flexible sheets for waterproofing - Part 1: Bitumen sheets for roof waterproofing - Determination of tensile properties*

EN 12311-2:2013, *Flexible sheets for waterproofing - Determination of tensile properties - Part 2: Plastic and rubber sheets for roof waterproofing*

EN 13249:2016, *Geotextiles and geotextile-related products - Characteristics required for use in the construction of roads and other trafficked areas (excluding railways and asphalt inclusion)*