



**SLOVENSKI STANDARD**  
**SIST EN 15382:2009**  
**01-januar-2009**

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Geosynthetic barriers - Characteristics required for use in transportation infrastructure

Geosynthetische Dichtungsbahnen - Eigenschaften, die für die Anwendung in Verkehrsbauten erforderlich sind

Géomembranes, géosynthétiques bentonitiques - Caractéristiques requises pour l'utilisation dans les infrastructures de transport

**Ta slovenski standard je istoveten z: EN 15382:2008**

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**ICS:**

|           |                           |                             |
|-----------|---------------------------|-----------------------------|
| 59.080.70 | Geotekstilije             | Geotextiles                 |
| 93.080.20 | Materiali za gradnjo cest | Road construction materials |

**SIST EN 15382:2009**

**en,fr,de**

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EUROPEAN STANDARD

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## Geosynthetic barriers - Characteristics required for use in transportation infrastructure

Géomembranes, géosynthétiques bentonitiques -  
Caractéristiques requises pour l'utilisation dans les  
infrastructures de transport

Geosynthetische Dichtungsbahnen - Eigenschaften, die für  
die Anwendung in Verkehrsbauten erforderlich sind

This European Standard was approved by CEN on 4 July 2008.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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**EN 15382:2008 (E)****Foreword**

This document (EN 15382:2008) has been prepared by Technical Committee CEN/TC 189 "Geosynthetics", the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by February 2009, and conflicting national standards shall be withdrawn at the latest by May 2010.

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, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, B, C or D, 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, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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## 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 may 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 European Standard are suitable for the purpose of on-site quality control.

Tests for several 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 may 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.

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**EN 15382:2008 (E)****1 Scope**

This European Standard specifies the relevant characteristics of geosynthetic barriers (polymeric, clay and bituminous geosynthetic barriers), used as fluid barriers in infrastructure works, e.g. roads, railroads, runways of airports, and the appropriate test methods to determine these characteristics. Tunnels and underground structures are addressed in EN 13491.

The intended use of these products is to control the pathway of liquids through the construction and to limit any contamination, e.g. by de-icing products, of groundwater or water sources.

This European Standard is applicable to geosynthetic barriers, but not to geotextiles or geotextile-related products, as defined in EN ISO 10318.

This European Standard provides for the evaluation of conformity of the product to this European Standard.

This European Standard defines requirements to be met by manufacturers and their authorised representatives with regard to the presentation of product properties.

This European Standard does not cover applications where the geosynthetic barrier will be in contact with water that has been treated for human consumption. In these cases other relevant standards, requirements and/or regulations should be observed.

**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.

- STANDARD PREVIEW**  
(Standard Not for Sale)
- [SIST EN 15382:2009](#)  
[http://standards.iteh.ai/catalog/standards/sist/en-15382-2009/5033c7d2bc54/sist-en-15382-2009](#)
- 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, *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 the construction of liquid waste disposal sites, transfer stations or secondary containment*
- EN 13493, *Geosynthetic barriers - Characteristics required for use in the construction of solid waste storage and disposal sites*
- EN 14150, *Geosynthetic barriers - Determination of permeability to liquids*
- EN 14196, *Geosynthetics - Test methods for measuring mass per unit area of clay geosynthetic barriers*
- EN 14414:2004, *Geosynthetics - Screening test method for determining chemical resistance for landfill applications*
- EN 14415, *Geosynthetic barriers - Test method for determining the resistance to leaching*
- CEN/TS 14416, *Geosynthetic barriers - Test method for determining the resistance to roots*
- CEN/TS 14417, *Geosynthetic barriers - Test method for the determination of the influence of wetting-drying cycles on the permeability of clay geosynthetic barriers*
- CEN/TS 14418, *Geosynthetic barriers - Test method for the determination of the influence of freezing-thawing cycles on the permeability of clay geosynthetic barriers*
- EN 14575, *Geosynthetic barriers - Screening test method for determining the resistance to oxidation*
- EN 14576, *Geosynthetics - Test method for determining the resistance of polymeric geosynthetic barriers to environmental stress cracking*
- EN ISO 527-1:1996, *Plastics - Determination of tensile properties - Part 1: General principles (ISO 527-1:1993 including Corr 1:1994)*
- EN ISO 527-3:1995, *Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets (ISO 527-3:1995)*
- EN ISO 9862, *Geosynthetics - Sampling and preparation of test specimens (ISO 9862:2005)*
- EN ISO 9863-1, *Geosynthetics - Determination of thickness at specified pressures - Part 1: Single layers (ISO 9863-1:2005)*
- EN ISO 10318:2005, *Geosynthetics - Terms and definitions (ISO 10318:2005)*
- EN ISO 10319, *Geotextiles - Wide-width tensile test (ISO 10319:1993)*
- EN ISO 10320, *Geotextiles and geotextile-related products – Identification on site (ISO 10320:1999)*
- EN ISO 12236, *Geosynthetics - Static puncture test (CBR test) (ISO 12236:2006)*
- EN ISO 12957-1, *Geosynthetics - Determination of friction characteristics - Part 1: Direct shear test (ISO 12957-1:2005)*
- EN ISO 12957-2, *Geosynthetics - Determination of friction characteristics - Part 2: Inclined plane test (ISO 12957-2:2005)*
- EN ISO 13438, *Geotextiles and geotextile-related products - Screening test method for determining the resistance to oxidation (ISO 13438:2004)*
- ISO 34-1:2004, *Rubber, vulcanized or thermoplastic - Determination of tear strength - Part 1: Trouser, angle and crescent test pieces*
- ASTM D696-03, *Standard test method for coefficient of linear thermal expansion of plastics between -30 °C and 30 °C with a vitreous silica dilatometer*

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**EN 15382:2008 (E)**

ASTM D5887-04, *Standard test method for measurement of index flux through saturated geosynthetic clay liner specimens using a flexible wall permeameter*

ASTM D5890-95, *Standard test method for swell index of clay mineral component of geosynthetic clay liners*

**3 Definitions and abbreviations****3.1 Definitions**

For the purposes of this document, the definitions given in EN ISO 10318:2005 and the following apply.

**3.1.1****product**

geosynthetic barrier, including polymeric, bituminous and clay barriers

**3.1.2****specification**

document in which the works, functions, specific conditions and required material property values of the geosynthetic barrier of use are described

**3.1.3****infrastructure**

basic transportation system that is necessary for the operation of any kind of traffic

**3.1.4****embankment shoulder**

slope extending from the edge of a pavement to a linear ditch made of packed soil built above the natural ground

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**3.2 Abbreviations**

[SIST EN 15382:2009](https://standards.iteh.ai/catalog/standards/sist/a9ddab07-5860-4cdb-9702-10318)

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For the purposes of this document, the abbreviations given in EN ISO 10318:2005 and the following apply.

**GBR-P:** polymeric geosynthetic barrier

**GBR-B:** bituminous geosynthetic barrier

**GBR-C:** clay geosynthetic barrier

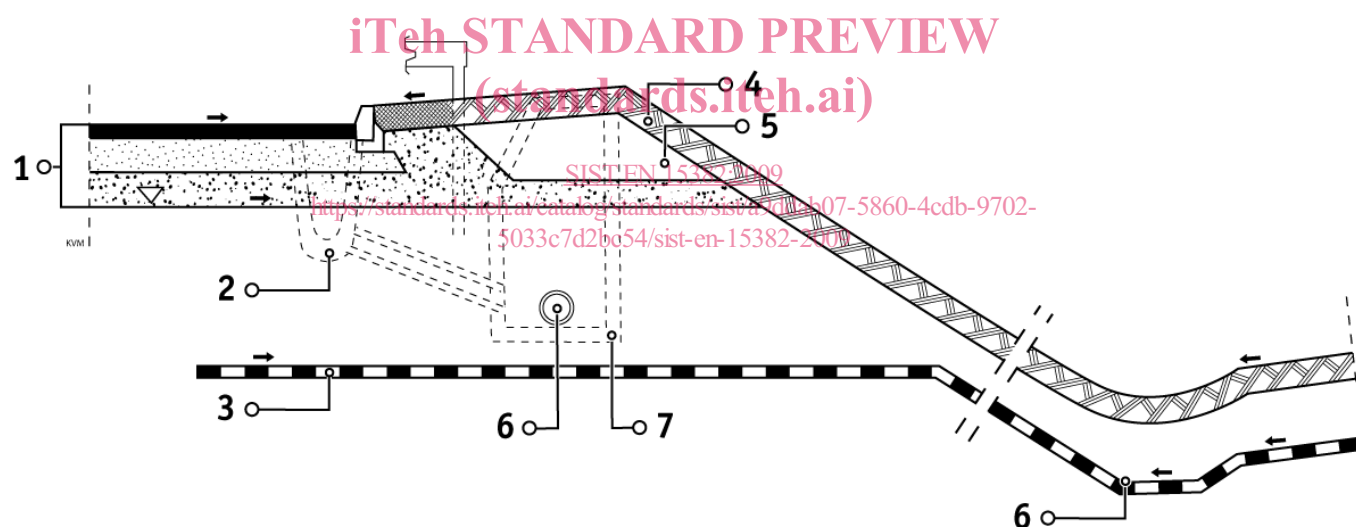
## 4 Required characteristics and corresponding methods of test

### 4.1 Types of Application

The main function of geosynthetic barriers used in these types of application is to control the pathway of liquids through the construction and to limit contamination of groundwater or water sources.

The following types of application can be distinguished:

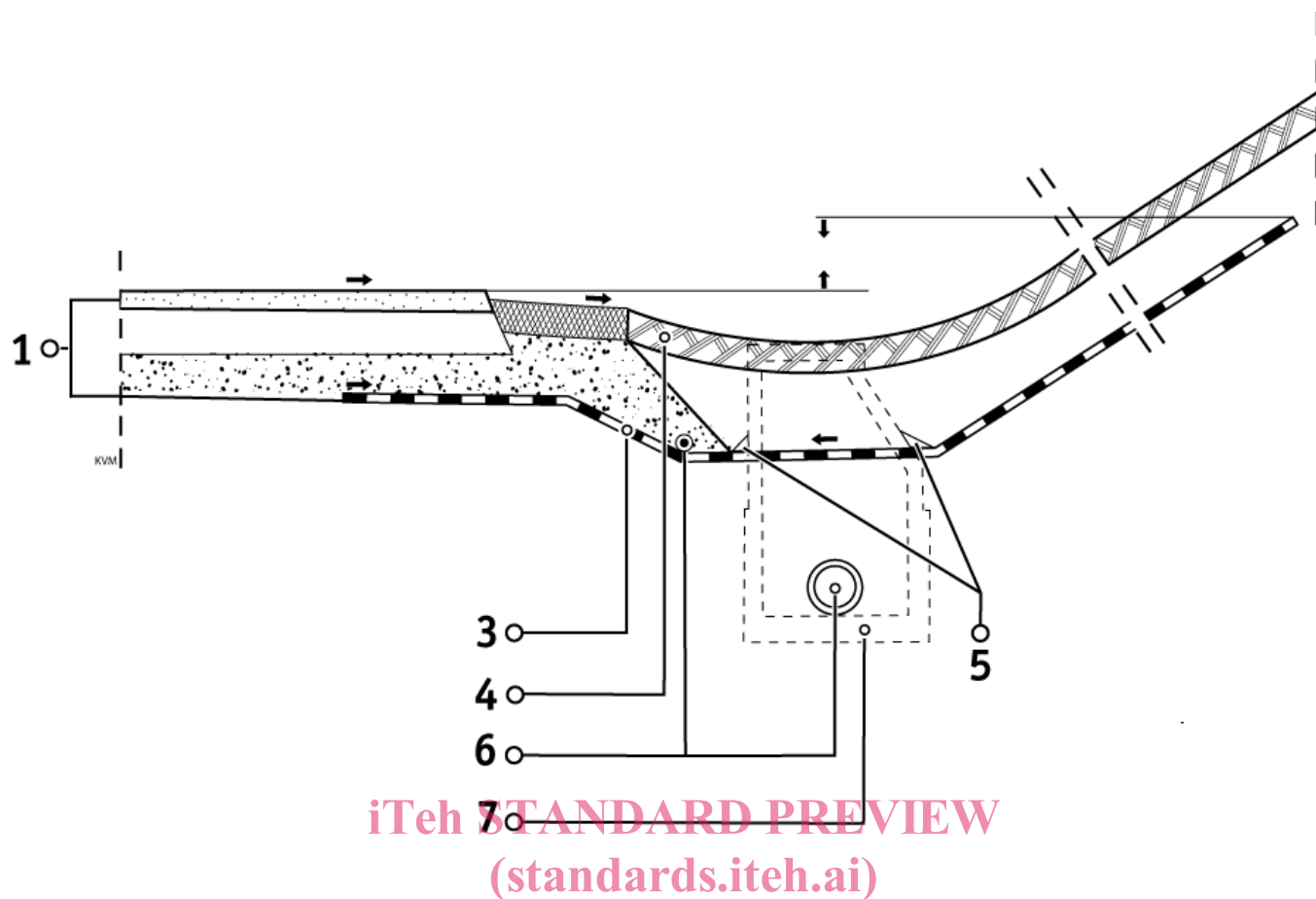
- deep laying GBR on side slopes: application where the GBR is installed under the drainage collection system and covers the entire slope as well as the ditch area (see figure 1).;
- high laying GBR on side slopes: application where the GBR is installed above the drainage collection system as a high laying sealing system and covers the opposite side slope of the road to prevent an overflow of the road surface run-off (see figure 2);
- deep laying GBR between two roads: application where the GBR is installed under the drainage collection system and covers the section between two roads, where a sealing is required (see figure 3);
- high laying GBR between two roads: application where the GBR is installed above the drainage collection system as a high laying sealing system and covers the section between two roads where sealing is required (see figure 4).



#### Key

- 1 Pavement and/or track bed
- 2 Rain water collection
- 3 Geosynthetic barrier (GBR)
- 4 Cover soil
- 5 Fill soil
- 6 Collection pipe
- 7 Manhole

Fig. 1 – Deep laying GBR on side slopes



### Key

- 1 Pavement and/or track bed
- 3 Geosynthetic barrier (GBR)
- 4 Cover soil
- 5 Sealing connection
- 6 Collection pipe
- 7 Manhole

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Fig. 2 – High laying GBR on side slopes