



SLOVENSKI STANDARD

SIST EN 14574:2015

01-junij-2015

Nadomešča:
SIST EN 14574:2005

Geosintetika - Ugotavljanje prebodne odpornosti podporne geosintetike proti preluknjanju s piramidnim bodalom

Geosynthetics - Determination of the pyramid puncture resistance of supported geosynthetics

Geokunststoffe - Bestimmung der Pyramidendurchdruckwiderstandes von Geokunststoffen auf harter Unterlage

Géosynthétiques - Détermination de la résistance au poinçonnement pyramidal de géosynthétiques sur support

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Ta slovenski standard je istoveten z: EN 14574:2015

ICS:

59.080.70 Geotekstilije Geotextiles

SIST EN 14574:2015 **en,fr,de**

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EUROPEAN STANDARD

EN 14574

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2015

ICS 59.080.70

Supersedes EN 14574:2004

English Version

Geosynthetics - Determination of the pyramid puncture resistance of supported geosynthetics

Géosynthétiques - Détermination de la résistance au poinçonnement pyramidal des géosynthétiques sur support

Geokunststoffe - Bestimmung des Pyramidendurchdrückwiderstandes von Geokunststoffen auf harter Unterlage

This European Standard was approved by CEN on 14 February 2015.

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.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 14574:2015) 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 October 2015, and conflicting national standards shall be withdrawn at the latest by October 2015.

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 supersedes EN 14574:2004.

Significant technical changes in comparison to the previous edition include:

— Annex A (informative) has been deleted.

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, 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 14574:2015 (E)

1 Scope

This European Standard specifies an index test method to determine the puncture resistance of a geosynthetic on a rigid support.

This method simulates the efficiency of a geosynthetic protecting a geosynthetic barrier material or another contact surface against sharp rigid elements under short term loading.

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 485-2, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN ISO 7500-1, *Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system (ISO 7500-1)*

EN ISO 9862, *Geosynthetics - Sampling and preparation of test specimens (ISO 9862)*

EN ISO 10320, *Geotextiles and geotextile-related products - Identification on site (ISO 10320)*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

3 Terms and definitions

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For the purposes of this document, the following terms and definitions apply.

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puncture load

load of the piston as it is pushed onto the test specimen at a constant rate of advance

3.2

push-through load

maximum load at perforation of the geosynthetic

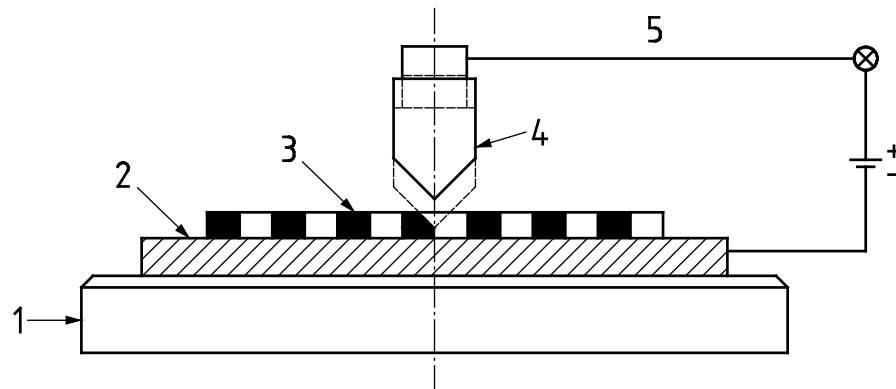
4 Principle

A test specimen lies flat on an aluminium plate supported by a steel base, secured in a tensile/compression testing machine. A force is exerted on the centre of the test specimen by an inverted steel pyramid, attached to a load indicator, until perforation of the specimen occurs. The recorded push-through load is considered to be representative for the protection efficiency of the specimen.

5 Apparatus

5.1 Test configuration

A suitable testing machine with a force reading accuracy according to EN ISO 7500-1 shall be used. The press shall be able to maintain a constant test speed of the loading piston. A special piston and electric signal equipment for determining the moment of push-through are the additional pieces of test equipment needed (see Figure 1).



Key

- 1 base
- 2 aluminium plate
- 3 test specimen
- 4 loading piston
- 5 electrical circuit (< 20 V DC)

Figure 1 — Test configuration with rigid underlying aluminium plate

5.2 Underlying aluminium medium

A 3 mm thick aluminium plate (AlMgSi1F32 according to EN 485-2) shall be used as the underlying medium for this test method. The aluminium plate simulates a hard, rigid support. It shall be placed on a steel base.

5.3 Loading piston

The upper part of the loading piston (see Figure 2) can be a cylinder with a diameter of $(25,0 \pm 0,1)$ mm or a square shape with a polished and hardened solid steel pyramid-shaped apex. The apex shall be a four sided pyramid with an apex angle of 90° rounded off with a radius (R) of $(0,50 \pm 0,02)$ mm. The edges of the pyramid shall be rounded off with a radius of $(0,50 \pm 0,02)$ mm. The transitional edge from the base of the pyramid to the cylinder or square shall have a radius (R) of $(0,5 \pm 0,1)$ mm.

Dimensions in millimetres

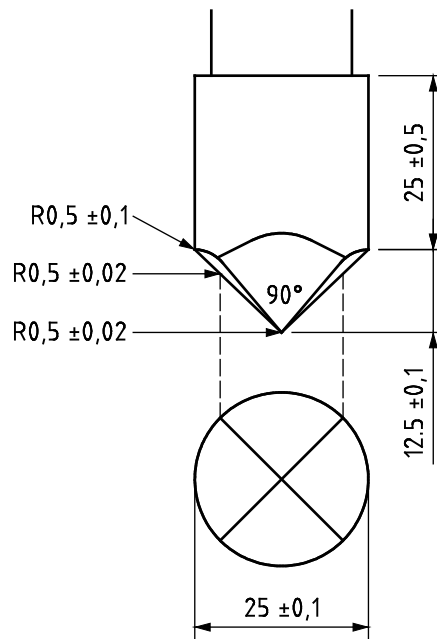


Figure 2 — Loading piston (e.g. with cylindrical upper part)

5.4 Electrical equipment for the determination of the push-through load

An electrical circuit shall be placed between the loading piston and the underlying medium in order to determine the puncture load at failure.

6 Specimens

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6.1 Sampling

Take specimens in accordance with EN ISO 9862.

6.2 Number and dimension of specimens

Cut ten test specimens of 100 mm x 100 mm from the sample.

7 Conditioning

The test specimens shall be conditioned and tested in the standard atmosphere for testing ((20 ± 2) °C at (65 ± 5) % RH) as defined in ISO 554.

The specimens can be considered to have been conditioned when the change in mass in successive weightings made at intervals of not less than 2 h does not exceed 0,25 % of the mass of the test specimen.

Conditioning and/or testing in a standard atmosphere may only be omitted when it can be shown that results obtained for the same specific type of product (both structure and polymer type) are not affected by changes in temperature and humidity exceeding the limits. This information shall be included in the test report.