



BSI Standards Publication

Geosynthetics – Determination of tensile properties of Polymeric Geosynthetic Barriers

National foreword

This British Standard is the UK implementation of EN 17323:2020.

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

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English Version

Geosynthetics - Determination of tensile properties of Polymeric Geosynthetic Barriers

Géosynthétiques - Détermination des propriétés
en traction des géomembranes polymériques

Geokunststoffe - Geosynthetische
Kunststoffdichtungsbahnen -
Bestimmung von Zugeigenschaften

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European foreword

This document (EN 17323:2020) 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of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by November 2020.

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1 Scope

This document specifies test methods for the determination of tensile properties of polymeric geosynthetic barriers PE (e.g. PE-HD and PE-LLD), FPO (e.g. EVA, FPP, and PE-VLD), PVC-P and EPDM.

Method A is suitable for testing polymeric geosynthetic barriers (GBR-P), made of PVC-P, EPDM and FPO (e.g. EVA, FPP and PE-VLD), non-reinforced (including maximum 80 g/m² glass fleece) and without backing.

Method B is suitable for testing polymeric geosynthetic barriers (GBR-P) made of PE (e.g. PE-HD and PE-LLD), non-reinforced and without backing.

Method C is suitable for testing polymeric geosynthetic barriers (GBR-P), reinforced and/or with backing.

Method D is suitable for measuring modulus (if required) of all non-reinforced GBR-P.

NOTE For homogenous polymers not listed above, method A and D can be used.

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 1849-2](#), *Flexible sheets for waterproofing — Determination of thickness and mass per unit area — Part 2: Plastics and rubber sheets for roof waterproofing*

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

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

EN ISO 9863-1, *Geosynthetics — Determination of thickness at specified pressures — Part 1: Single layers (ISO 9863-1)*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

3.1 thickness

d
distance between the upper and lower surfaces of a geosynthetic, measured normal to the surfaces and under a specified pressure, expressed in mm

3.2 width

b
the initial dimension of the parallel sided portion of the specimen, expressed in mm

3.3 cross sectional area

A

product of initial width b (mm) and thickness d (mm) of a test specimen, expressed in square millimetres (mm²)

3.4 gauge length

l_0

distance between two reference points, when using an extensometer, located on the specimen parallel to the applied load, expressed in mm

3.5 reference length

l_r

distance for calculating tensile elongation, when not using an extensometer, expressed in mm

3.6 yield point

point on the stress-elongation curve, other than the failure point, at which an increase in strain (elongation) occurs without an increase in stress

NOTE For semi-crystalline polymers the first occurrence in the tensile test where there is an increase in strain (elongation) without an increase in stress.

3.7 tensile stress at yield point

σ_y

first stress at which an increase in strain (elongation) occurs without an increase in stress, expressed in N/mm²

NOTE It may be less than maximum attainable stress.

3.8 elongation at yield

ϵ_y

strain (elongation), expressed as a percentage, at the first occurrence in the tensile test where there is an increase in strain (elongation) without an increase in stress

3.9 tensile stress at break

σ_b

stress, at the highest value of stress, just before break on the stress /elongation curve, expressed in N/mm²

NOTE It may be less than the maximum attained stress.

3.10 elongation at break

ϵ_b

strain (elongation), expressed as a percentage, at the highest value of stress, just before break on the stress /strain curve