

Geosynthetics- Determination of compression behaviour-

Part 1: Compressive creep properties

ICS 59.080.70

National foreword

This British Standard is the UK implementation of EN ISO 25619-1:2008. It is identical to ISO 25619-1:2008. It supersedes BS EN 1897:2001 which is withdrawn.

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

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2009.
© BSI 2009

ISBN 978 0 580 57757 4

Amendments/corrigenda issued since publication

Date	Comments

English Version

Geosynthetics - Determination of compression behaviour - Part 1: Compressive creep properties (ISO 25619-1:2008)

Géosynthétiques - Détermination du comportement en
compression - Partie 1: Propriétés de fluage en
compression (ISO 25619-1:2008)

Geokunststoffe - Bestimmung des Druckverhaltens - Teil 1:
Eigenschaften des Druckkriechens (ISO 25619-1:2008)

This European Standard was approved by CEN on 29 November 2008.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Geosynthetics — Determination of compression behaviour —

Part 1: Compressive creep properties

1 Scope

This part of ISO 25619 specifies index test methods for determining the compressive creep properties of geosynthetic products. The test specimens are subjected either to normal compressive loading or to a combination of normal compressive loading and shear loading.

The test method with a normal load only (see Clause 5) is the standard method.

The test method in which both normal and shear loads are applied (see Clause 6) is intended for products that are sensitive to shear failure, i.e. which have a columnar or cusped structure.

The tests are carried out on dry specimens or on specimens immersed in water. The test is intended to be carried out with the specimen immersed in water when any part of the geosynthetic product contains a hydrophilic polymer.

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.

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

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

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

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

ISO 10318, *Geosynthetics — Terms and definitions*

3 Terms and definitions

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

3.1

thickness

d

distance between the two rigid plates in contact with the specimen at any stage of the test

See Figures 1 and 2.

NOTE Thickness is measured in millimetres.

3.2

initial thickness

d_i

thickness of the specimen under an applied normal stress of 2 kPa

NOTE Initial thickness is measured in millimetres, in accordance with ISO 9863-1.

3.3

initial compressed thickness

d_0

thickness measured 1 min after loading (normal loading) or 4 min after loading (normal and shear loading)

3.4

total compressive strain

ε

time-dependent change in thickness

NOTE Total compressive strain is expressed as a percentage of the initial thickness (d_i).

3.5

compressive creep strain

ε_{cc}

time-dependant change in thickness of a material subjected to a constant compressive load (after reaching the initial compressed thickness, d_0 , of the specimen)

NOTE Compressive creep strain is expressed as a percentage of the initial compressed thickness.

3.6

compressive creep collapse

occurrence of a sudden increase in the speed of change of thickness of a specimen subjected to a constant compressive load

4 Test specimens

4.1 Sampling

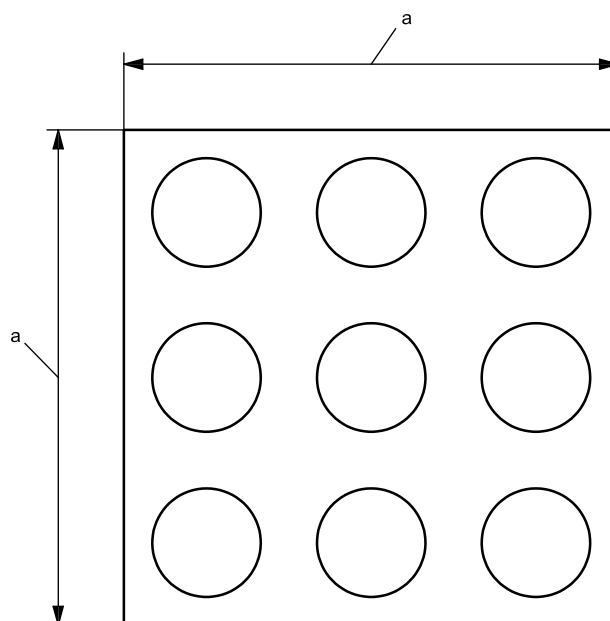
Specimens shall be taken in accordance with ISO 9862.

4.2 Number and dimensions of test specimens

Cut two specimens from the test sample for each test load; a new specimen is required for each test.

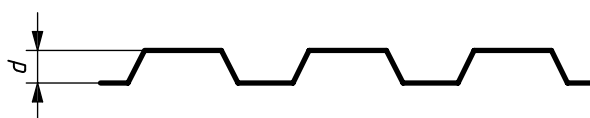
Each specimen shall satisfy the following criteria with regard to dimensions:

- the specimen shall be square and have a minimum size of 100 mm × 100 mm (see Figures 1 and 2); if the specimen has a structure in which loading is resisted at defined points or areas, then the loading plate shall cover at least three complete points or areas in both directions (see Figure 3);
- specimens shall be cut with the sides parallel to the length and width of the sample.



a) Plan area

^a 100 mm minimum, or at least three contact points in each direction.

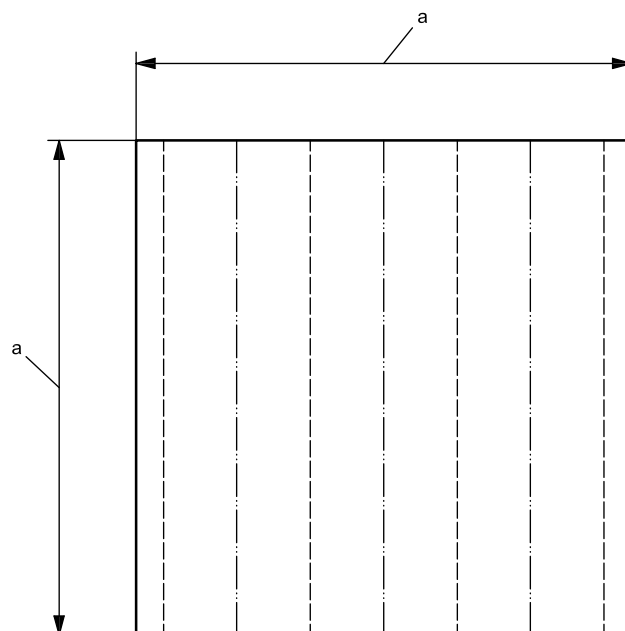


b) Cross-sectional area

Key

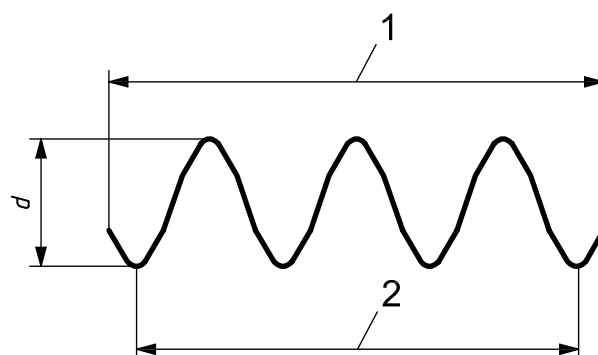
d thickness of the specimen, in millimetres

Figure 1 — Dimensions of general test specimen



a) Plan area

- ^a 100 mm minimum, or a minimum of three contact lines on the top plate and a minimum of four contact lines on the base plate.

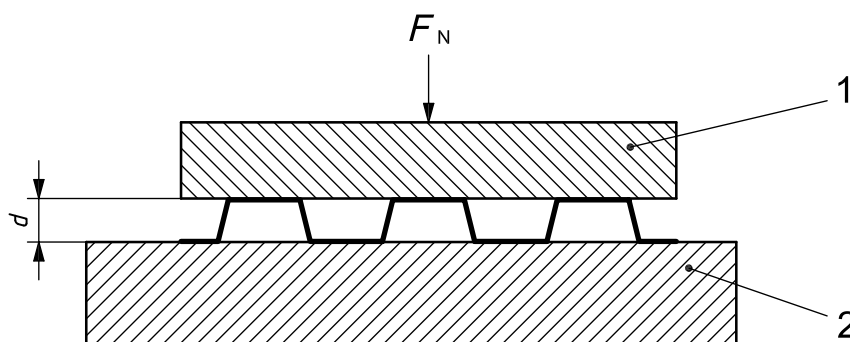


b) Cross-sectional area

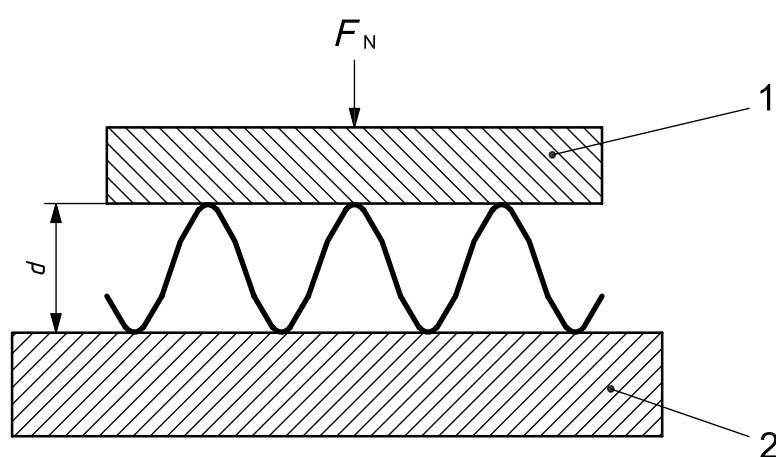
Key

- 1 specimen width
- 2 representative width of the specimen
- d* thickness of specimen, in millimetres

**Figure 2 — Size of specimen of a geomat
(with wave structure or double-sided structured core of a drainage composite)**



a) Example for single-sided structured cores



b) Example for double-sided structured cores

Key

- 1 metal top plate, smooth surface (same size as specimen or larger)
- 2 metal base plate, smooth surface (larger than top plate)
- d thickness of specimen, in millimetres
- F_N applied normal force, in kilonewtons

Figure 3 — Loading arrangements for structured cores

4.3 Conditioning

The test specimens shall be conditioned and tested in the standard atmosphere for testing at $(20 \pm 2)^\circ\text{C}$ and $(65 \pm 5)\%$ relative humidity, as defined in ISO 554.

The specimens can be considered to have been conditioned when the change in mass in successive weighings 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 the 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.

The test shall be carried out with the specimen immersed in water when any part of the geosynthetic product contains a hydrophilic polymer. Where the test is to be carried out with the specimen immersed in water, the specimen shall be soaked in water for 24 h prior to the test. Deionized water in accordance with ISO 3696 shall be used. The water shall be maintained at a temperature of $(20 \pm 2)^\circ\text{C}$.