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National Standards Authority of Ireland

STANDARD

I.S. EN ISO 12956:1999

ICS 59.080.70

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GEOTEXTILES AND GEOTEXTILE-RELATED PRODUCTS - DETERMINATION OF THE CHARACTERISTIC OPENING SIZE (ISO 12956:1999)

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EUROPEAN STANDARD

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English version

Geotextiles and geotextile-related products - Determination of the characteristic opening size (ISO 12956:1999)

Géotextiles et produits apparentés - Détermination de l'ouverture de filtration caractéristique (ISO 12956:1999)

Geotextilien und geotextilverwandte Produkte - Bestimmung der charakteristischen Öffnungsweite (ISO 12956:1999)

This European Standard was approved by CEN on 29 November 1998.

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Foreword

The text of EN ISO 12956:1999 has been prepared by Technical Committee CEN/TC 189 "Geotextiles and geotextile-related products", the secretariat of which is held by IBN, in collaboration with Technical Committee ISO/TC 38 "Textiles".

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of an identical text or by endorsement, at the latest by August 1999, and conflicting national standards shall be withdrawn at the latest by August 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European standard specifies a method for the determination of the characteristic size of the openings of a single layer of a geotextile or geotextile-related product using the wet-sieving principle.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 963	Geotextiles and geotextile-related products - Sampling and preparation of test specimens
EN 30320	Geotextiles - Identification on site (ISO 10320 : 1991)
ISO 565	Test sieves - Metal wire cloth, perforated metal plate and electroformed sheet - Nominal sizes of openings
ISO 2591-1	Test sieving - Part 1 : Methods using test sieves of woven wire cloth and perforated metal plate (Revision of ISO 2591-1:1988)

3 Symbols

For the purposes of this European Standard, the following symbols apply:

d_n : particle size for which n % by mass is smaller than the mass of measured particles;

O_{90} : size of opening which allows particles of size d_{90} to pass through the geotextile or geotextile-related product;

C_u : coefficient of uniformity, defined as d_{60}/d_{10}.

4 Principle

The particle size distribution of a graded granular material (usually soil) is determined after washing through a single layer of the geotextile or geotextile-related product used as a sieve, without load. The characteristic opening size corresponds to a specified size of the granular material passed.

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5 Apparatus and materials

5.1 Apparatus

The apparatus comprises a sieving unit, which allows testing of a specimen with an exposed sieving area corresponding to a minimum diameter of 130 mm, complying with the following requirements:

a) sieving device with a frequency of 50 Hz to 60 Hz;

b) predominantly vertical sieve motion capable of maintaining a 1,5 mm amplitude (3 mm swing height) over the period of test;

c) water supply system;

d) spray nozzle(s) to ensure even wetting of the test specimen, enclosed in a transparent cylinder or covering cap to avoid soil/granular material loss;

NOTE : It is recommended that the nozzle(s) be capable of a water discharge of approximately 0,5 l/min at a working pressure of about 300 kPa.

e) specimen clamping device;

f) pan, fixed on the sieving apparatus, with a tube connection to the device for collection of the water and granular material passing through the specimen. Typical sieving equipment is represented in figure 1;

g) grid with 1 mm diameter wire and a mesh size of (10 $\pm$ 1) mm to support the specimen during the test, to avoid excessive deformation of the specimen under the weight of the granular material.

5.2 Granular material

The granular material shall comply with the following requirements:

a) it shall be cohesionless ($d_o \geq 0{,}010$ mm), i.e. particles shall not aggregate in water;

b) it shall not be gap-graded and the particles shall be essentially round, sharp-edged flaky particles to be avoided;

c) $3 \leq C_u \leq 20$;

d) to improve the accuracy of the characteristic opening size determination, the granular material shall be such that $d_{20} \leq O_{90} \leq d_{80}$; the zone for the graded granular material and the range of O_{90} values which are applicable are given in figure 2.

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