

INTERNATIONAL
STANDARD

ISO
10318-1

NORME
INTERNATIONALE

First edition
Première édition
2015-04-01

Geosynthetics —

Part 1:
Terms and definitions

Géosynthétiques —

Partie 1:
Termes et définitions

Sample Document

get full document from standards.iteh.ai



Reference number
Numéro de référence
ISO 10318-1:2015(E/F)

© ISO 2015

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT DOCUMENT PROTÉGÉ PAR COPYRIGHT

© ISO 2015

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie, l'affichage sur l'internet ou sur un Intranet, sans autorisation écrite préalable. Les demandes d'autorisation peuvent être adressées à l'ISO à l'adresse ci-après ou au comité membre de l'ISO dans le pays du demandeur.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland/Publié en Suisse

Contents

	Page
Foreword	v
1 Scope	1
2 Terms and definitions	1
2.1 Terms related to functions	1
2.2 Terms related to products	2
2.3 Terms related to properties	4
2.4 Other terms	7
Bibliography	8

Sample Document

get full document from standards.iteh.ai

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 221, *Geosynthetics*.

This first edition of ISO 10318-1 cancels and replaces ISO 10318:2005, which has been technically revised.

ISO 10318 consists of the following parts, under the general title *Geosynthetics*:

- *Part 1: Terms and definitions*
- *Part 2: Symbols and pictograms*

Geosynthetics —

Part 1: Terms and definitions

1 Scope

The intent of this part of ISO 10318 is to define terms related to functions, products, properties, and other terms used in EN and ISO geosynthetics International Standards. Definitions of terms not included in this part of ISO 10318 can be found in the International Standards describing appropriate test methods.

NOTE See also the ISO online browsing platform (OBP): www.iso.org/obp/ui/

2 Terms and definitions

2.1 Terms related to functions

2.1.1 drainage
collecting and transporting of precipitation, ground water, and/or other fluids in the plane of a geosynthetic material

2.1.2 filtration
restraining of uncontrolled passage of soil or other particles subjected to hydrodynamic forces, while allowing the passage of fluids into or across a geosynthetic material

2.1.3 protection
preventing or limiting of local damage to a given element or material by the use of a geosynthetic material

2.1.4 reinforcement
use of the stress-strain behaviour of a geosynthetic material to improve the mechanical properties of soil or other construction materials

2.1.5 separation
prevention from intermixing of adjacent dissimilar soils and/or fill materials by the use of a geosynthetic material

2.1.6 surface erosion control
use of a geosynthetic materials to prevent or limit soil or other particle movements at the surface of, for example, a slope

2.1.7 barrier
use of a geosynthetic to prevent or limit the migration of fluids

2.1.8

stress relief

<for asphalt overlay> use of a geosynthetic to retard the development of cracks by absorbing the stresses that arise from the damaged pavement

2.2 Terms related to products

2.2.1

geosynthetic

GSY

generic term describing a product, at least one of whose components is made from a synthetic or natural polymer, in the form of a sheet, a strip, or a three-dimensional structure, used in contact with soil and/or other materials in geotechnical and civil engineering applications

2.2.1.1

geotextile

GTX

planar, permeable, polymeric (synthetic or natural) textile material, which may be nonwoven, knitted, or woven, used in contact with soil and/or other materials in geotechnical and civil engineering applications

2.2.1.1.1

nonwoven geotextile

GTX-NW

geotextile made of directionally or randomly orientated fibres, filaments, or other elements, mechanically and/or thermally and/or chemically bonded

2.2.1.1.2

knitted geotextile

GTX-K

geotextile produced by interlooping one or more yarns, filaments, or other elements

2.2.1.1.3

woven geotextile

GTX-W

geotextile produced by interlacing, usually at right angles, two or more sets of yarns, filaments, tapes, or other elements

2.2.1.2

geotextile-related product

GTP

planar, permeable, polymeric (synthetic or natural) material used in contact with soil and or other materials in geotechnical and civil engineering applications, which does not comply with the definition of a geotextile

Note 1 to entry: See *geotextile* ([2.2.1.1](#)).

2.2.1.2.1

geogrid

GGR

planar, polymeric structure consisting of a regular open network of integrally connected, tensile elements, which may be linked by extrusion, bonding, or interlooping or interlacing, whose openings are larger than the constituents

2.2.1.2.2

geonet

GNT

geosynthetic consisting of parallel sets of ribs overlying and integrally connected with similar sets at various angles

2.2.1.2.3**geomat****GMA**

three-dimensional, permeable structure, made of polymeric monofilaments, and/or other elements (synthetic or natural), mechanically and/or thermally and/or chemically and/or otherwise bonded

2.2.1.2.4**geocell****GCE**

three-dimensional, permeable, polymeric (synthetic or natural) honeycomb, or similar cellular structure, made of linked strips of geosynthetics

2.2.1.2.5**geostrip****GST**

polymeric material in the form of a strip of width not more than 200 mm, used in contact with soil and/or other materials in geo-technical and civil engineering applications

2.2.1.2.6**geospacer****GSP**

three-dimensional polymeric structure with an interconnected air space in between, used in contact with soil and/or other materials in geotechnical and civil engineering applications

2.2.1.3**geosynthetic barrier****GBR**

low-permeability geosynthetic material, used in geotechnical and civil engineering applications with the purpose of reducing or preventing the flow of fluid through the construction

2.2.1.3.1**polymeric geosynthetic barrier****GBR-P****geomembrane**

factory-assembled structure of geosynthetic materials in the form of a sheet in which the barrier function is essentially fulfilled by polymers

2.2.1.3.2**clay geosynthetic barrier****GBR-C****geosynthetic clay liner**

factory-assembled structure of geosynthetic materials in the form of a sheet in which the barrier function is essentially fulfilled by clay

2.2.1.3.3**bituminous geosynthetic barrier****GBR-B****bituminous geomembrane**

factory-assembled structure of geosynthetic materials in the form of a sheet in which the barrier function is essentially fulfilled by bitumen

2.2.1.4**geocomposite****GCO**

manufactured, assembled material using at least one geo-synthetic product among the components

2.3 Terms related to properties

2.3.1 General properties

2.3.1.1

nominal value

NV

value of a material property as declared, rather than measured, by the producer/supplier of the material

2.3.2 Terms related to physical properties

2.3.2.1

thickness

d

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

Note 1 to entry: Unit is expressed in mm.

2.3.2.2

mass per unit area

ρ_A

ratio of the mass of a specimen of specified dimensions to its area

Note 1 to entry: Unit is expressed in grams per square metre (g/m²).

2.3.3 Terms related to hydraulic properties

2.3.3.1

characteristic opening size

O_{90}

size of opening which corresponds to the maximum particle size of 90 % by weight of the soil passing through the geotextile

Note 1 to entry: Unit is expressed in μm .

2.3.3.2

permeability

rate of fluid transmission through a geosynthetic

2.3.3.3

coefficient of permeability normal to the plane

k_n

ratio between flow velocity v and hydraulic gradient i normal to plane

Note 1 to entry: Unit is expressed in m/s.

2.3.3.4

flux

q_n

volumetric flow rate per unit area normal to the plane of the product at a defined head

Note 1 to entry: Unit is expressed in l/(m²·s).

2.3.3.5

velocity index

v -index

velocity corresponding to a head loss of 50 mm across a specimen, in a water permeability test

Note 1 to entry: Unit is expressed in mm/s.

2.3.3.6**permittivity** ψ

volumetric flow rate of water and/or other liquids per unit area per unit head loss, under laminar flow conditions, normal to the plane of a product

Note 1 to entry: Unit is expressed in s⁻¹.

2.3.3.7**in-plane flow capacity** q_p

volumetric flow rate of water and/or other liquids per unit width of specimen, at defined gradients in the plane of a product

Note 1 to entry: Unit is expressed in l/(m·s).

2.3.3.8**transmissivity** θ

volumetric flow rate per unit width of specimen and per unit gradient in the plane of a product

Note 1 to entry: Unit is expressed in l/(m·s).

2.3.3.9**liquid tightness**

ability of a geosynthetic to retain liquid

2.3.4 Terms related to mechanical properties**2.3.4.1****tensile stress, related to the cross-sectional area of the specimen** σ

tensile force per cross-sectional area of the specimen prior to loading, carried by a specimen at any given time in a short-term test

Note 1 to entry: Tensile stress, related to the cross-sectional area of the specimen, is expressed in MPa.

2.3.4.1.1**yield point**

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

2.3.4.1.2**tensile stress at yield point** σ_y

first stress at which an increase in strain occurs without an increase in stress

Note 1 to entry: It may be less than the maximum attainable stress.

2.3.4.1.3**tensile stress at failure** σ_f

tensile stress at which the test specimen ruptures

2.3.4.1.4**maximum tensile stress** $\sigma_{\max}$

maximum tensile stress sustained by the test specimen during a tensile test