Technical Report

ISO/TR 18228-8

Design using geosynthetics —

Part 8: Surface erosion control

Dimensionnement utilisant des géosynthétiques —
Partie 8: Lutte contre l'érosion de surface

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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 document 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 221, *Geosynthetics*.

A list of all parts in the ISO 18228 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The ISO/TR 18228 series provides information regarding designs using geosynthetics for soils and below ground structures in contact with natural soils, fills and asphalt. The series contains ten parts which cover designs using geosynthetics, including guidance for characterization of the materials to be used and other factors affecting the design and performance of the systems which are particular to each part, with ISO/TR 18228-1 providing general information relevant to the subsequent parts of the series.

The series is written in a limit state format and information is provided in terms of partial material factors and load factors for various applications and design lives, where appropriate.

This document includes information relating to the erosion control function on slopes and river or channel banks. Details of design methodology adopted in current practice are provided.

Erosion is a natural process by which soil and rock material is loosened and transported. Natural erosion occurs primarily on a geologic timescale, but when human activities alter the landscape the process of erosion can be greatly accelerated. Construction site erosion causes serious and costly problems, both on-site and off-site. Fluid borne soil erosion process begins by water or wind detaching particles by mechanical forces and fluid stream over the surface.

When land is disturbed at a construction site, the erosion rate accelerates dramatically. Since ground cover on an undisturbed site protects the surface, the removal of that cover increases the site's susceptibility to erosion. Disturbed land can have an erosion rate 1 000 times greater than the reconstruction rate. Even though the process of construction necessitates that land be left bare for periods of time, proper planning and use of erosion prevention measures can reduce the impact of accelerated erosion caused by land development.

Attempting to quantify the costs of soil erosion is challenging at best. The number of variables contributing to erosion along with the costs for cleaning up the effects are extensive. Soil erosion impairs water resources used for drinking, navigation, recreation or irrigation.

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Design using geosynthetics —

Part 8:
Surface erosion control

1 Scope

This document provides information on the design of geosynthetics for surface erosion control on slopes and river or channel banks.

It does not apply to the design of geosynthetics for the stability of slopes and river or channel banks. It does not apply to coastal protection issues.

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.

ISO 10318-1, *Geosynthetics — Part 1: Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10318-1 and the following terms apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
erosion control revegetation mat
ECRM
geomat placed on a slope without being infilled

3.2
reinforced geomat
geocomposite composed of an erosion control product and a reinforcing element

Note 1 to entry: Examples of reinforced geomats include a geogrid, a steel mesh, yarns or other elements.

3.3
prefilled geomat
erosion control product prefilled at factory with a bitumen bound mineral filler of stone chippings, or another filler, affording a sufficiently open structure to allow the vegetation to grow through it

3.4
georoll
GRO
permeable structure of loose, either natural or synthetic, or both, fibres and other elements (natural or synthetic) formed into tubes inserted inside either natural or synthetic, or both, netting

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