TECHNICAL REPORT

ISO/TR 20432

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Guidelines for the determination of the long-term strength of geosynthetics for soil reinforcement

Lignes directrices pour la détermination de la résistance à long terme des géosynthétiques pour le renforcement du sol

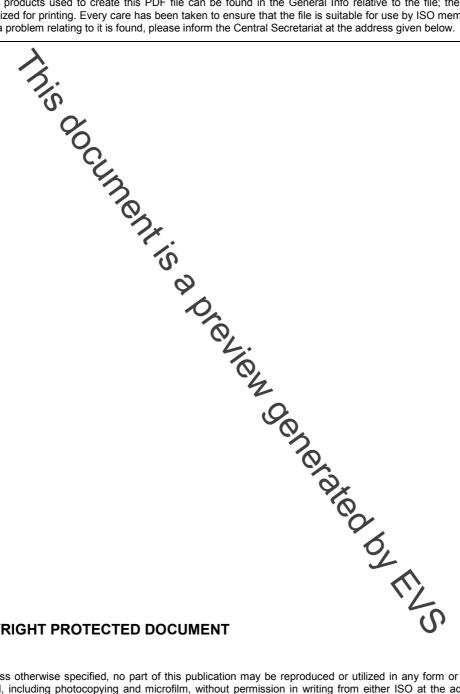


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Foreword

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 Maison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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.

ISO/TR 20432 was prepared by Technical Committee ISO/TC.221, Geosynthetics.

Guidelines for the determination of the long-term strength of geosynthetics for soil reinforcement

1 Scope

This Technical Report provides guidelines for the determination of the long-term strength of geosynthetics for soil reinforcement.

This Technical Report escribes a method of deriving reduction factors for geosynthetic soil-reinforcement materials to account for treep and creep rupture, installation damage and weathering, and chemical and biological degradation. It is untended to provide a link between the test data and the codes for construction with reinforced soil.

The geosynthetics covered in this Technical Report include those whose primary purpose is reinforcement, such as geogrids, woven geotextiles and strips, where the reinforcing component is made from polyester (polyethylene terephthalate), polypropylene, high density polyethylene, polyvinyl alcohol, aramids and polyamides 6 and 6,6. This Technical Report does not cover the strength of joints or welds between geosynthetics, nor whether these might be more or less durable than the basic material. Nor does it apply to geomembranes, for example, in landfills. It does not cover the effects of dynamic loading. It does not consider any change in mechanical properties due to soil temperatures below 0 °C, nor the effect of frozen soil. The Technical Report does not cover uncertainty in the design of the reinforced soil structure, nor the human or economic consequences of failure.

Any prediction is not a complete assurance of durability

2 Normative references

The following referenced documents are indispensable for 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 10318, Geosynthetics — Terms and definitions

3 Terms, definitions, abbreviated terms and symbols

3.1 Terms and definitions

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

3.1.1

long-term strength

load which, if applied continuously to the geosynthetic during the service lifetime, is predicted to lead to rupture at the end of that lifetime

3.1.2

long-term strain

total strain predicted in the geosynthetic during the service lifetime as a result of the applied load