Technical Report

ISO/TR 18228-10

Design using geosynthetics —

Part 10: Asphalt pavements

Conception utilisant des géosynthétiques —

Partie 10: Chaussées bitumineuses

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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/TR 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 guidance for designs using geosynthetics for soils and below ground structures in contact with natural soils, fills and asphalt. The series contains 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 guidance relevant to the subsequent parts of the series.

The series is generally written in a limit state format and guidelines are 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 asphalt pavements. Details of design methodology adopted in a number of regions are provided.

For more than 30 years roads have been built, maintained and operated using different types of geosynthetics used as asphalt interlayers incorporated within asphalt pavements. Amongst other benefits, these products are successful in mitigating reflective cracking in pavements, improving pavement performance, extending pavement service life, resulting in a reduced total cost of ownership and a reduced carbon footprint.

Many of these products are related to geosynthetics used in geotechnical engineering and these products have been adapted and adjusted for use as asphalt interlayers. A geosynthetic used as an asphalt interlayer is special in the sense that it is used mostly between an existing pavement and a new asphalt layer. The method of function of these products cannot be directly compared to, for example, concrete reinforcement nor to soil stabilization mechanics. Moreover, geosynthetics used as asphalt interlayers are one part of a system together with the tack or bond coat bonded in between two courses.

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Design using geosynthetics —

Part 10:
Asphalt pavements

1 Scope

This document provides general considerations to support the design guidance to geotechnical and civil engineers involved in the design of structures in which a geotextile is used to fulfil the function of an asphalt interlayer. The key potential failure mechanisms and design aspects to be considered are described, and guidance is proposed to select engineering properties.

The state of the art is however limited and does not commend any particular design method. This document can be used as a basis for further research on, for example, system selection, design, performance testing, creation of local guidelines.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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
bond coat
tack coat
bituminous binder used to promote the adhesion between layers in the construction and maintenance of roads and paved areas

Note 1 to entry: In some countries a bond coat refers to a polymer modified bitumen while a tack coat refers to a regular bitumen. In this document bond coat is used synonymously also for tack coat.

3.2
flexible pavement
layers of asphalt or bituminous concrete layers overlying a base of granular material on a prepared subgrade

3.3
installation aid
product attached to a paving grid in order to support the installation process in different ways without providing any additional function (B, STR and R)

Note 1 to entry: An installation aid could consist of a light non-woven fabric, additional fibres in the apertures of the grid or a thin synthetic foil. An installation aid can improve contact of the product to the base thus achieving better adhesion during the paving process. A thin synthetic foil attached to a grid is sometimes used to decrease adhesion experienced during unrolling.

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