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Second edition
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Geotextiles and geotextile-related products — Strength of internal structural junctions —

Part 1: Geocells

Géotextiles et produits apparentés — Résistance des liaisons de structures internes —

Partie 1: Géosynthétiques alvéolaires



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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 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).

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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*.

This second edition cancels and replaces the first edition (ISO 13426-1:2003), which has been technically revised. The main changes compared to the previous edition are as follows:

— [Clauses 2, 5, 6, 7, 8](#) and all the figures have been technically revised.

A list of all parts in the ISO 13426 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

Geocells are geotextile-related products composed of single strips interconnected in several possible ways (extrusion, thermal bonding, gluing, hot melt, stitching, etc.) to form a panel of adjacent cells, where generally the contact between two elements occurs along lines or in specific points, and not uniformly on the whole surface. These lines or points are referred to as "junctions".

A geocell junction can fail in four different ways:

- 1) by shear (see [Figure 1](#)): when failure is caused by a force parallel to the junction itself;
- 2) by peeling or delamination (see [Figure 2](#)): when failure is caused by a force, normal to the junction, which separates the cells from each other at one edge of the junction;
- 3) by splitting (see [Figure 3](#)): when a force, normal to the junction, pulls away the two cells adjacent to the junction;
- 4) by local overstressing (see e.g. [Figure 4](#): geocells secured with pins): when the fixation element locally overstresses the junction, leading to a compression, shear or peel failure.

NOTE This can be considered as a performance property, in the same way as a tensile test on seams/joints.

It is therefore impossible to define one single testing method for measuring the junction strength of geocells. Hence this document includes the principles for testing the four failure mechanisms explained above. These principles should be adapted to each single product. In order to avoid confusion about the interpretation of figures, reference should be made to the exact test method in test reports and data sheets, e.g. ISO 13426-1:2019, 4.1.