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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44569.1-2024

**Geosynthetics - Strength of internal structural junctions - Part
1: Geocells
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document is part 1 of GB/T 44569 "Determination of internal joint strength of geosynthetics". GB/T 44569 has been issued the following parts were published.

Part 1: Geocells. -

This document is modified to adopt ISO 13426-1:2019 "Geotextiles and related products - Internal strength between nodes - Part 1: Geogrids room".

Compared with ISO 13426-1:2019, this document has the following structural adjustments.

Deleted 3.1 of ISO 13426-1:2019; -Chapter 8 corresponds to Chapter 8 of ISO 13426-1:2019, of which 8.1 corresponds to paragraph 1, 8.2 corresponds to paragraphs 2 to 5, and 8.3 corresponds to Paragraph 3.

The technical differences between this document and ISO 13426-1:2019 and their reasons are as follows.

The description of the applicability of four methods is added to the "Scope" to adapt to the actual situation of domestic geocell products (see Chapter 1);

The definition of "geocell" in "Terms and Definitions" was deleted, the definition of "grid nominal size" was changed, and the normative reference GB/T 19274-2024 (see Chapter 3) is used to coordinate with the existing plastic geocell standards;

Method C (see 4.4) has been changed to make the description of the method more concise and clear; -Adjust Note 2 of ISO 13426-1:2019 Method C to the main text (see 4.4) to make the choice of test method clearer; -Adjust Note 2 of ISO 13426-1:2019 Method D to the main text (see 4.5) to make the choice of test method clearer; -the test method of "conditioning and test environment" was changed, and the normative reference GB/T 2918 was added.

The conditions of "Test environment" were changed from " $(20 \pm 2) ^\circ\text{C}$ " and " $(65 \pm 5) \%$ " to " $(23 \pm 2) ^\circ\text{C}$ " and " $(50 \pm 10) \%$ " (see Chapter 5) is more in line with the characteristics of my country's plastic geocells and is suitable for my country's technical conditions and requirements.

High operability;

ISO 9862 (see Chapter 6) was replaced by the normative reference GB/T 13760 to adapt to my country's technical conditions and improve operability.

Sexuality;

The normative reference GB/T 16825.1 replaced ISO 7500-1 (see 7.1) to adapt to my country's technical conditions and improve the reliability of the system.

Operability.

The following editorial changes were also made to this document.

In order to coordinate with the existing standards, the name of the standard was changed to "Determination of the strength of internal nodes of geosynthetics Part 1: Geosynthetics

"Cell";

The informative reference to ISO 554 has been deleted. -

Introduction

The plastic geocell is made of plastic strips connected to each other by welding, fusion, injection molding and mortise and tenon processes, and when unfolded, it has four sides.

The connection between two structural units usually occurs on a line or a specific point, rather than being evenly distributed.

The lines or points distributed over the entire surface are called "nodes".

Geocell joints can fail in four different ways.

Shear failure. caused by forces parallel to the nodes; 1) Delamination or delamination failure. caused by forces perpendicular to the node, causing the mesh to separate from each other at one end of the node; 2) Tensile failure. The force perpendicular to the node separates the two adjacent grids; 3) Local overload. The fixed unit causes local overload at the node, resulting in extrusion, shear or peeling failure. 4) Similar to the tensile failure of geotextile seams/joints, the above four types of failure simulate the possible failures that may be encountered in geocell node engineering applications.

Actual destruction.

It is unscientific to use a single test method to evaluate the node strength of geocells. This document uses four methods to correspond to the above four types of failure.

bad ways, and explains the testing principles of each method.

Due to the particularity of the determination method of the internal node strength of geocell products, GB/T 44569 "Internal Node Strength of Geosynthetics" the determination of is proposed to consist of two parts.

Part 1: Geocells. The purpose is to specify the method for determining the strength of internal nodes in geocells.

Part 2: Geosynthetics. The purpose is to specify the internal joints of geosynthetics other than geocells and geoclay liners.

Method for determination of point strength.

Determination of internal node strength of geosynthetics Part 1: Geocells

1 Scope

This document describes four test methods for determining the strength of internal nodes within geocells under different conditions.

This document is applicable to the strength of welded nodes, micro-pile fusion nodes, injection-molded nodes, mortise and tenon nodes, fixed-angle nodes, etc.

Method A and B are not applicable to the measurement of plug-in nodes.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies.

in this document.

GB/T 2918 Standard environment for conditioning and testing of plastic specimens (GB/T 2918-2018, ISO 291:2008, MOD) GB/T 13760 Sampling and specimen preparation of geosynthetics (GB/T 13760-2009, ISO 9862:2005, IDT) GB/T 16825.1 Inspection of static uniaxial testing machines - Part 1: Inspection and calibration of the force measuring system of tension and/or compression testing machines Standard (GB/T 16825.1-2022, ISO 7500-1:2018, IDT) GB/T 19274-2024 Geosynthetics Plastic geocell

3 Terms and definitions

The terms and definitions defined in GB/T 19274-2024 and the following apply to this document.

Junction

A point, line or surface in a geocell structure where two adjacent strips connect to form a grid element.

Fastening system

System for fixing geocells to the ground.

Note: Common accessories for fixing systems include rivets, nail piles, U-shaped rods, etc.

Nominal cell size

When the cell is fully expanded to the specified edge length and edge width, the maximum distance between adjacent nodes along the strip direction is the grid nominal distance.

The length is S_c , and the smaller distance between adjacent nodes along the strip direction is the nominal width of the grid R_c .