



Designation: D8269 – 21

Standard Guide for the Use of Geocells in Geotechnical and Roadway Projects¹

This standard is issued under the fixed designation D8269; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide is intended to cover basic considerations for the use of geocells in various geotechnical and roadway projects to bring a unified understanding of efficient and appropriate ways to utilize this type of ground improvement technology for a variety of geotechnical-related applications, including but not limited to: load support for pavements, subgrade improvement, slope stability, retaining walls, earth retention, and slope and channel protection. Engineers and owners interested in using this manufactured product can refer to the information in this guide to learn about key design principles, properties, mechanisms, and methodologies for applicable geotechnical applications. Geotechnical designs that incorporate geocells should take into consideration the specific attributes of each product. The engineer is encouraged to utilize design methodologies based on reliable test results and research.

1.2 This guide offers a collection of information and does not recommend a course of action. This guide cannot replace education or experience, and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances.

1.3 This guide is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this guide be applied without consideration of a project's many unique aspects.

1.4 The word “standard” in the title of this guide means only that this guide has been approved through the ASTM International consensus process.

1.5 The values given in SI units are to be regarded as standard. Values in parentheses are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- D1693 Test Method for Environmental Stress-Cracking of Ethylene Plastics
- D3895 Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
- D4355/D4355M Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus
- D4439 Terminology for Geosynthetics
- D4595 Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method
- D5199 Test Method for Measuring the Nominal Thickness of Geosynthetics
- D5262 Test Method for Determining the Unconfined Tension Creep and Creep Rupture Behavior of Planar Geosynthetics Used for Reinforcement Purposes
- D5397 Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
- D5721 Practice for Air-Oven Aging of Polyolefin Geomembranes
- D5885/D5885M Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry
- D5994/D5994M Test Method for Measuring Core Thickness of Textured Geomembranes
- D6392 Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods

¹ This guide is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.01 on Mechanical Properties. Current edition approved July 15, 2021. Published August 2021. DOI: 10.1520/D8269-21.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.