



SKAPS INDUSTRIES

TECHNICAL NOTE: **PEEL STRENGTH TEST**



There are four tests for Geocomposite peel strength (or ply adhesion or bond strength). They are: ASTM D 413, ASTM D 904, ASTM D7005 and Geosynthetics Research Institute had one listed as GRI-GC7. These testing methods are all different testing methods for ply adhesion and are developed based on the type of materials tested. Below is the summary of all three ASTM testing methods.

Test Method ASTM D 413, “Standard Test Methods for Rubber Property—Adhesion to Flexible Substrate” These test methods cover the determination of the adhesion strength between plies of fabric bonded with rubber or the adhesion of the rubber layer in articles made from rubber attached to other material. These test methods are used to ensure the quality of a product by determining the force per unit width required to separate a rubber layer from a flexible substrate such as fabric, fiber, wire, or sheet metal. The preferred rate of travel of the power-actuated grip is 0.85 mm/s (2 in./min) for 25 mm (1.0 inch) wide strip specimen.

Test Method ASTM F904, “Standard Test Method for Comparison of Bond Strength or Ply Adhesion of Similar Laminates Made from Flexible Materials” covers a procedure for comparing the bond strength or ply adhesion of similar laminates made from flexible materials such as cellulose, paper, plastic film, and foil. This includes laminates made by various processes: adhesive laminates, extrusion coatings, extrusion laminates, and co-extrusion. The preferred rate of travel of the power-actuated grip is 5.1 mm/s (12 in./min) for 25 mm (1.0 inch) wide strip specimen.

Test Method ASTM D 7005, “Standard Test Method for Determining the Bond Strength (Ply Adhesion) of Geocomposites” This index test method defines a procedure for comparing the bond strength or ply adhesion of Geocomposites. The focus is on geotextiles bonded to Geonets or other types of drainage cores; for example, geotextiles adhered or bonded to themselves, Geonet, Geomembranes, Geogrids, or other dissimilar materials. The preferred rate of travel of grip of the tensile testing machine is 305 + 10 mm/min (12 + 0.5 in./min) for 101.6 mm (4.0 inch) wide and 203.2 mm (8.0 inch) long strip specimen.

Test Method GRI-GC7, “Determination of Adhesion and Bond Strength of Geocomposites” developed by the Geosynthetic Research Institute. This test method has been replaced by ASTM D 7005.



CONCLUSION:

The test method ASTM D 7005 is the most appropriate test because it has been specifically developed for drainage Geocomposites, items with dissimilar material bonding and is approved by the ASTM Geosynthetics Committee D35. ASTM D 413 is specifically designed for materials containing rubber and is for planar adhered surfaces, not for irregular objects. ASTM F904 is for comparing ply adhesion of similar laminated materials. The ASTM D 7005 uses 4.0-inch-wide specimen as opposed to 1.0-inch-wide specimen for ASTM D 413 & ASTM F904, which allows a more representative sample. Because Geonets and Geogrids have drainage cores (ribs) those are not continuously laminated, wider specimen gives more accurate test results. Therefore, ASTM D 7005 is the most applicable and reliable test method for Geocomposites.

Disclaimer: *All information provided in this publication is correct to the best knowledge of the company and is given out in good faith. the information presented herein is intended only as a general guide to the use of such products and no liability is accepted by SKAPS Industries for any loss or damage however arising, which results either directly or indirectly from the use of such information. Information and product specifications may change without notice.*