

UNDERSTANDING GEOTEXTILES MINIMUM AVERAGE ROLL VALUE

Prepared by:

TenCate™ Geosynthetics North America
365 South Holland Drive
Pendergrass, GA 30567
Tel 706 693 2226
Fax 706 693 4400
www.tencate.com

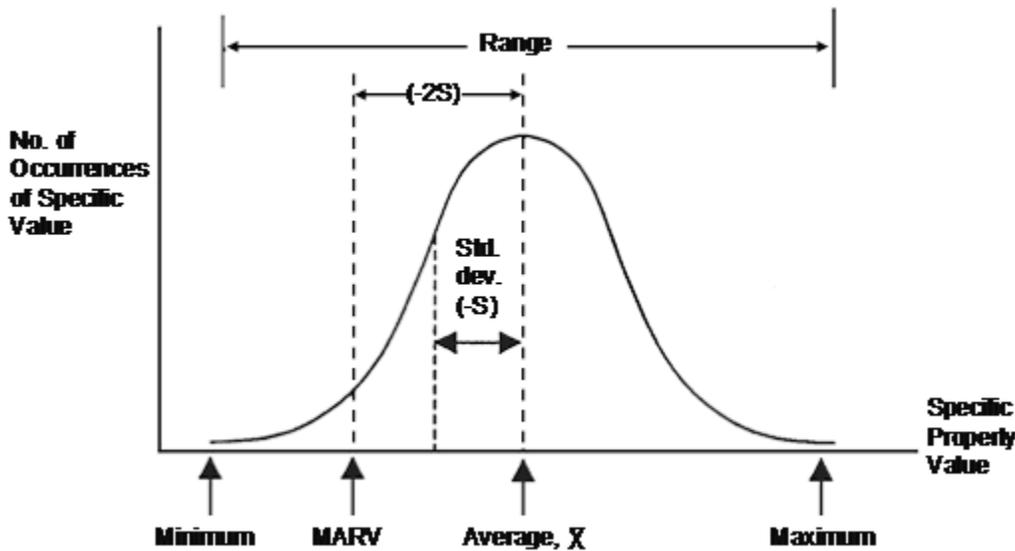
May 18, 2010

As the global leader in the geosynthetic industry, TenCate™ Geosynthetics understands the difference between “typical” value and “minimum average roll value” (MARV). Depending upon the particular geotextile manufacturing process, there is some amount of property variation. Together, these variations result in a range of physical, mechanical, hydraulic and endurance test values. Even when samples are repeatedly tested and averaged together, there is a spread in the results. This spread is statistically addressed using the average (or mean) value and its standard deviation.

Difference between “Typical” Values and MARV

In many parts of the world, geotextiles are specified using “typical” values, which is the average or mean value. As a result, 50% of the values can be expected to exceed the typical value and 50% can be expected to fall below the typical value.

The “minimum average roll value” (MARV) was developed by regulators and manufacturers during the 1980s while setting geotextile specifications. The concept is a negotiated middle ground between the customary regulatory absolute minimum values and the customary textile manufacturing average values in their respective specifications. The MARV is derived statistically as the average value less two standard deviations as shown in the following diagram.



For the North American geotextile market, ASTM D 4759 (Standard Practice for Determining the Specification Conformance of Geosynthetics) is used to determine geotextile conformance to a specification with the MARV. The MARV assures that the specified geotextile will meet the project requirements. In addition, by using the MARV and ASTM D 4759, the product’s conformance can be determined.

Importance of Specifying MARV

As TenCate™ remains the global leader in geosynthetics, it is important to ensure that our geotextiles meet the specified MARV. Not all “200 lbs” products have a MARV grab tensile strength that is 200 lbs. Many global producers provide geotextiles with test values based not on the MARV, but a typical value. As a result, when the product arrives on site, it does not meet the required MARV specifications and may not perform as intended.

TenCate™ Geosynthetics North America recently tested two products identified as “200 lbs tape” from an overseas supplier against Mirafi® 500X. Both of these materials are advertised as separation geotextiles, which meet a grab tensile strength per ASTM D 4632 of 200 lbs. The pass/fail criterion for this material was measured using the requirements outlined in ASTM D 4759.

Specimen #	Grab Tensile Strength per ASTM D 4632	
	“200 lb Tape”	Mirafi 500X
1	162	228
2	181	229
3	162	224
4	171	219
5	154	232
Average	166 lbs	226 lbs
MARV Specified	200 lbs	200 lbs
Result	Failed	Passed

While many geotextile importers are reputable, the difference between a typical value and MARV is often overlooked, potentially causing the product to fail in a given application.

To ensure that the specified geotextile performs correctly, TenCate™ Geosynthetics North America recommends the following:

- Specify all geotextiles using the industry accepted MARV standard.
- Request a notarized certification from the supplier of the material. This certification should be signed and notarized by the responsible person in charge of the laboratory.
- Request a copy of the suppliers Geosynthetic Accreditation Institute-Laboratory Accreditation Program (GAI-LAP) certificate. A list of accredited laboratories is available from the Geosynthetics Institute or on-line at www.geosynthetic-institute.org/gai/lab.html
- Request the Quality Control Plan of the supplier.

This plan should address:

- How the product is tested.
 - Where the product is tested.
 - Where records of the test data are maintained.
 - Ensure that quality control testing follows ASTM procedures
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- Require National Transportation Product Evaluation Program (NTPEP) test data for the geotextile products you specify. Additional information on the NTPEP program is available at www.ntpep.org.
 - Perform periodic on-site testing per ASTM D 4759 to determine if the supplied geotextile meets the specified MARV.

As the world's largest geotextile manufacturer, TenCate™ Geosynthetics embraces standardized testing and reporting protocols to ensure the material specified is the material installed. Adhering to these standards is another way TenCate™ Geosynthetics North America makes the difference.

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