LAYFIELD GEOSYNTHETICS

TECHNICAL SPECIFICATIONS

MIRAFI® RS*i*-SERIES - GEOTEXTILES

High-strength geotextiles extend the expected life of your roads by preventing the mixing of fill and subsoil and reducing the amount of fill required. Specially designed for base course reinforcement and subgrade stabilization for roadways and similar applications, high-strength geotextiles are woven from high-tenacity polypropylene or polyester fibers (or a blend of both).

RS*i*'s unique double-layer technology provides high modulus strength and excellent separation with superior filtration and drainage. This means installing one product rather than two to provide the reinforcement and separation/filtration functions with suitable drainage.

Material Properties	April 2023	Mirafi® RS*i* - Series		
Rev	ASTM	**RS580*i***	**RS380*i***	**RS280*i***
STRENGTH (MARV)				
Tensile Strength @ 2% strain (CD)	D4595	26.3 kN/m 1800 lbs/ft	14.9 kN/m 1020 lbs/ft	9.6 kN/m 660 lbs/ft
Tensile Strength @ 5% strain (CD)	D4595	63.9 kN/m 4380 lbs/ft		23.8 kN/m 1632 lbs/ft
HYDRAULIC				
Flow Rate	D4491	3056 l/min/m^2 75 gal/min/ft^2	3056 l/min/m^2 75 gal/min/ft^2	2852 l/min/m^2 70 gal/min/ft^2
Permittivity	D4491	1.0 sec^{-1}	0.9 sec^{-1}	0.9 sec^{-1}
SOIL RETENTION				
Apparent Opening Size (AOS)[1]	D4751	0.425 mm 40 US sieve	0.425 mm 40 US sieve	0.425 mm 40 US sieve
Pore Size O_{95}	D6767	337 microns[3]	365 microns[3]	273 microns[3]
Pore Size O_{50}	D6767			175 microns[3]
Pore Size O_{50}[6]	D6767		185 microns[3]	
Pore Size O_{50}[8]	D6767	192 microns[3]		
SOIL INTERACTION				
Interaction Coefficient[2]	D5321		0.89	0.89
Wide Width Seam Strength	D4884	43.8 kN/m 3000 lbs/ft	39.4 kN/m 2700 lbs/ft	35 kN/m 2400 lbs/ft
UV Resistance (at 500 hours)	D4355	90 %	90 %	90 %

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PHYSICAL				
Roll Dimensions		4.5 m X 91 m 15 ft X 300 ft 5.18 m x 91.4 m 17 ft x 300 ft	4.57 m X 91 m 15 ft X 300 ft 5.18 m x 91.4 m 17 ft x 300 ft	4.57 m X 91.4 m 15 ft X 300 ft 5.18 m x 91.4 m 17 ft x 300 ft
Estimated Roll Weight		122.5 kg 270 lbs	122.5 kg 270 lbs	122.5 kg 270 lbs
ROADWAY DESIGN AND PERFORMANCE PROPERTIES				
Base Course MR Improvement Factor1	AASHTO R50-09	1.40	1.3	
Subgrade MR Improvement / Increase2	AASHTO R50-09	9000 lb/in2 (62.0 MPa)		
Cyclic Tensile Modulus CD : Jcyclic3	D7556	160 kip/ft 2336 (kN/m)		
Traffic Benefit Ratio: TBR2,3,4	AASHTO R50-09		3.9 / 5.2 / 21.75	
Traffic Benefit Ratio: TBR4,5,6	AASHTO R50-09	9.0 / 13.1 / 39.0		
Interaction Coefficient: Ci5	D6706		0.89	
Interaction Coefficient: Ci7	D6706	0.90		
Pore Pressure Dissipation Ratio2	Measured		1.6	
Pore Pressure Dissipation Ratio4	Measured	2.0		
Typical Dynamic Filtration Pore Size 095 / 050 8	D6767	337 / 192 microns	365 / 185 microns	
Maximum Percent Open Area: MPOA9	D6767	7.3 %		

RS380*i* & RS280*i* Notes:

[1] Minimum Roll Value

[2] Interaction Coefficient value is for sand or gravel based on testing conducted by SGI Testing Services.

RS580*i* Notes:

[1] Value Determined from Results of Independent Testing Performed at Kansas State University in accordance with NCHRP Report 512 "Accelerated Pavement Testing: Data Guidelines" and AASHTO R50-09 Geosynthetic Reinforcement of the Aggregate Base Course of Flexible Pavement Structures." Multiplier for Unbound Granular Material; for SG MR between 4.5 and 6.9 ksi (30.9 and 47.4 MPa).

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[2] Value Determined from Results of Independent Testing and Geosynthetic Calibrations to AASHTOWare ME Reported by NCHRP 01-50 "Quantifying the Influence of Geosynthetics on Pavement Performance." Subgrade MR Increase for SG MR between 5 and 25 ksi (69 and 172 MPa).
[3] Value Determined from Results of Independent Testing and Geosynthetic Calibrations Reported by WTI / MTSU "Relative Operational Performance of Geosynthetics Used as Subgrade Stabilization." Cyclic Tensile Modulus Measured at 2% Permanent Strain; Resilient Interface Shear Stiffness Normal Stress = 5.08 psi (35 kPa); Interface Shear Stress = 0.73 psi (5 kPa).
[4] Value Determined from Results of Independent Testing Performed at GeoTesting Express (GeoComp) "A Laboratory Evaluation of the Performance of TenCate Mirafi® Geosynthetics in Roadway Stabilization Applications – Georgia Silt Subgrade," September 1, 2011. 9-kip {40 kN} Wheel Load, SG CBR = 1%, 12-inch (300-mm) Crushed Aggregate BC (CBR > 25%), 3-inch (75-mm) Rut Depth.
[5] Value Determined from Results of Independent Testing Performed at LTRC "Performance of Reinforced–Stabilized Unpaved Test Sections Built Over Native Soft Soil Under Full-Scale Moving Wheel Loads," TRR Volume 2511, 2015. Measured at 0.34-inch (8.64 mm) Rut Depth; Peak Pore Pressure 6-inches (150 mm) Below Geosynthetic.
[6] Value Determined from Results of Independent Testing Performed at GeoTesting Express (GeoComp) "A Laboratory Evaluation of the Performance of TenCate Mirafi® Geosynthetics in Roadway Stabilization Applications – Montana Clay Subgrade," September 1, 2011. 9-kip (40 kN) Wheel Load, SG CBR = 1.8%, 8-inch (200-mm) Rounded Aggregate BC (CBR > 25%), 3-inch (75-mm) Rut Depth.
[7] Interaction Coefficient value is for sand (SP) or gravel (GW) based on testing conducted by SGI Testing Services.
[8] Typical Value Determined from Specimen Results of Independent Testing Performed at TRI Environmental, Various Dates.
[9] Maximum Value Determined from Specimen Results of Independent Testing Performed at TRI Environmental, Various Dates.

INSTALLATION

Layfield has highly experienced crews and specialized sewing equipment suitable to provide sewn prefabricated panels to suit your project. Prepare the surface on which the geosynthetic reinforcement is to be placed. The subgrade should be cleared of all obstacles and proof rolled when possible. The surface should be smooth and level such that any shallow depressions or humps do not exceed 15 cm (6 in) in depth and height. While unrolling the geosynthetic, inspect it for damage or defects and deploy it flat with no wrinkles or folds. Adjacent rolls should be seamed or overlapped as a function of subgrade strength.