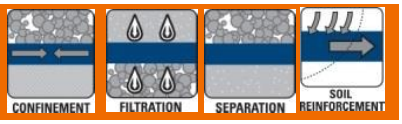
TENCATE GEOSYNTHETICS
Americas

Mirafi® RS280*i*



Mirafi® RS280*i* is a revolutionary geosynthetic with orange identification yarns and super high-tenacity polypropylene filaments formed into an innovative weave to provide superior reinforcement strength and soil interaction integrated with high water flow and soil retention capabilities.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

Mechanical Properties	Test Method	Unit	Typical Roll Value	Minimum Average Roll Value
Tensile Strength @ 2% Strain (MD)	ASTM D4595	lbs/ft (kN/m)	840 (12.3)	600 (8.8)
Tensile Strength @ 2% Strain (CD)	ASTM D4595	lbs/ft (kN/m)	960 (14.0)	660 (9.6)
Tensile Strength @ 5% Strain (MD)	ASTM D4595	lbs/ft (kN/m)	1980 (28.9)	1620 (23.6)
Tensile Strength @ 5% Strain (CD)	ASTM D4595	lbs/ft (kN/m)	2100 (30.6)	1632 (23.8)
Flow Rate	ASTM D4491	gal/min/ft^2 (l/min/m^2)	85 (3463)	70 (2852)[1]
Permittivity	ASTM D4491	sec^{-1}	1.2	0.9[1]
			Typical Roll Value	
Pore Size O_{95}	ASTM D6767	microns	273	
Pore Size O_{50}	ASTM D6767	microns	175	
Index Properties			**Maximum Opening Size**	
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve (mm)	40 (0.425)	40 (0.425)
			Minimum Test Value	
Interaction Coefficient[2]	ASTM D6706	--	0.89	
Factory Sewn Seam	ASTM D4884	lbs/ft (kN/m)	2400 (35.0)	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	90	

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

Physical Properties	Unit	Roll Sizes	
Roll Dimensions (width x length)	ft (m)	15 x 300 (4.57 x 91.4)	17 x 300 (5.2 x 91.4)
Roll Area	yd^2 (m^2)	500 (419)	567 (474)

U.S. Patent: 9,404,233

TENCATE GEOSYNTHETICS
Americas

Mirafi® RS380*i*

Mirafi® RS380*i* is a revolutionary geotextile with orange identification yarns and super high-tenacity polypropylene filaments formed into an innovative weave to provide superior reinforcement strength and soil interaction integrated with high water flow and soil retention capabilities.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

Mechanical Properties	Test Method	Unit	Typical Roll Value	Minimum Average Roll Value
Tensile Strength @ 2% strain (MD)	ASTM D4595	lbs/ft (kN/m)	720 (10.5)	600 (8.8)
Tensile Strength at 2% Strain (CD)	ASTM D4595	lbs/ft (kN/m)	1200 (17.5)	1020 (14.9)
Tensile Strength @ 5% strain (MD)	ASTM D4595	lbs/ft (kN/m)	2100 (30.6)	1800 (26.3)
Tensile Strength @ 5% strain (CD)	ASTM D4595	lbs/ft (kN/m)	2580 (37.6)	2256 (32.9)
Flow Rate	ASTM D4491	gal/min/ft^2 (l/min/m^2)	85 (3463)	75 (3056)[1]
Permittivity	ASTM D4491	sec^{-1}	1.2	0.9[1]
			Typical Roll Value	
Pore Size O_{95}	ASTM D6767	microns	365	
Pore Size O_{50}	ASTM D6767	microns	185	
Index Properties			**Maximum Opening Size**	
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve (mm)	50 (0.30)	40 (0.425)
			Minimum Test Value	
Interaction Coefficient[2]	ASTM D6706	--	0.89	
Factory Sewn Seam	ASTM D4884	lbs/ft (kN/m)	2700 (39.4)	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	90	

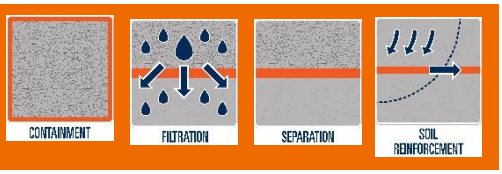
[1] Minimum Roll Value
[2] Interaction Coefficient value is for sand or gravel based on testing conducted by SGI Testing Services.

Physical Properties	Unit	Roll Sizes	
Roll Dimensions (width x length)	ft (m)	15 x 300 (4.57 x 91)	17 x 300 (5.2 x 91)
Roll Area	yd^2 (m^2)	500 (419)	567 (474)

U.S. Patent 8,333,220 and Pending

TENCATE GEOSYNTHETICS
Americas

Mirafi® RS580*i*



Mirafi® RS580*i* is a specially designed geosynthetic that integrates the key performance characteristics to maximize performance. Extensive performance testing has been performed per AASHTO and FHWA guidelines to validate performance for both paved and unpaved roads.

Roadway Design and Performance Properties	Guidance Document / Test Method	Unit	Design / Calibration Value	
Base Course M_R Improvement Factor[1]	AASHTO R50-09	---	1.40	
Subgrade M_R Improvement / Increase[2]	AASHTO R50-09	lb/in^2 (MPa)	9,000 (62.0)	
Cyclic Tensile Modulus: J_{cyclic}[3]	ASTM D7556	kip/ft (kN/m)	MD	CD
			60 (876)	160 (2,336)
Resilient Interface Shear Stiffness: G_i[3]	ASTM D7499	kip/in^2 (MPa)	329 (2,268)	
Traffic Benefit Ratio: TBR[4,5,6]	AASHTO R50-09	---	9.0 / 13.1 / 39.0	
Interaction Coefficient: C_i[7]	ASTM D6706	---	0.90	
Pore Pressure Dissipation Ratio[4]	Measured	---	2.0	
Typical Dynamic Filtration Pore Size O_{95} / O_{50} [8]	ASTM D6767	microns	337 / 192	
Maximum Percent Open Area: MPOA[9]	ASTM D6767	Percent	7.3	
Tensile Strength @ 2% Strain (MARV)	ASTM D4595	lb/ft (kN/m)	480 (7.0)	1,800 (26.3)
Tensile Strength @ 5% Strain (MARV)	ASTM D4595	lb/ft (kN/m)	1,440 (21.0)	4,380 (63.9)

Index Properties	Test Method	Unit	Roll Value
Apparent Opening Size, AOS (Maximum Roll Value)	ASTM D4751	U.S Sieve (mm)	40 (0.425)
Hydraulic Flow Rate (MARV)	ASTM D4491	gal/min/ft^2 (l/min/m^2)	75 (3,056)
Permittivity (MARV)	ASTM D4491	sec^{-1}	1.0
UV Resistance (at 500 hours exposure)	ASTM D4355	% strength retained	90

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 M_R between 4.5 and 6.9 ksi (30.9 and 47.4 MPa).

[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 M_R Increase for SG M_R 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.

U.S. Patent 8,333,220 and 8,598,054