

GEOSYNTHETICS

TENCATE
Mirafi®



DRAINAGE
SOLUTIONS, INC.

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www.drainagesolutionsinc.com

Geosynthetics Product & Application Specification Guide



Protective & Outdoor Fabrics
Aerospace Composites
Armour Composites

Geosynthetics
Industrial Fabrics
Synthetic Grass

TENCATE
materials that make a difference

TenCate Geosynthetics

the global leader in geosynthetics

Mirafi® geosynthetics are a specific, engineered response to a specific problem: how to enable landforms to withstand the most severe and erosive forces of nature.

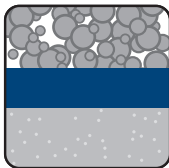
Through engineering and research that span more than 50 years, TenCate Geosynthetics has created the most diverse line of geosynthetic fabrics available from any single source on the planet—and has applied them throughout the world to significantly reduce the “hidden” cost of earthen support systems: their frequency of maintenance and repair over a period of years.

Moreover, geosynthetics are increasingly becoming an economical solution to problems that otherwise could only be solved through drastic, expensive methods.

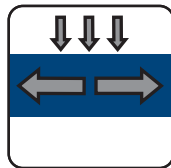
- Geosynthetics are engineered specifically as a cost-effective solution for geotechnical and hydraulic applications.
- Geosynthetics are easy to install.
- Geosynthetics are effective in permanent civil structures because they are composed of highly durable polymers.
- Geosynthetics are environmentally friendly since they reduce the extraction and depletion of sands and aggregates.

At TenCate Geosynthetics, we believe that this proven technology is endowing the age old relationship between man and nature with a new dimension of compatibility.

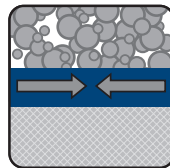
TenCate Geosynthetics' Functions Include:



SEPARATION



REINFORCEMENT



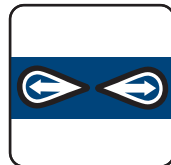
CONFINEMENT



FILTRATION



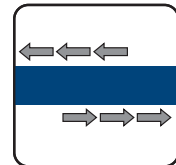
DRAINAGE



WICKING



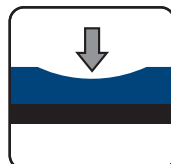
**EROSION
PROTECTION**



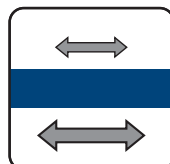
**ADHESIVE
BONDING**



SEALING



PROTECTION








STRESS RELIEF

Recommended Geosynthetics

	Moisture Content	Best	Better	Good
Very Weak - CBR < 0.5 Sink to Knees	Saturated	1		
Weak - 0.5 < CBR < 1.5	Saturated	RS580i	1	
Sink to Ankles	Partially Saturated	RS580i	RS380i	
Moderate - 1.5 < CBR < 3.0	Saturated	RS580i	RS380i	1
Pickup ruts 1"	Partially Saturated	RS580i	RS380i	RS280i
Firm - CBR > 3.0	Saturated	RS580i	RS380i	RS280i

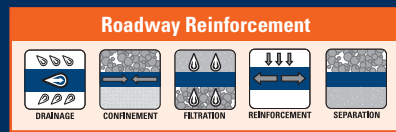
1 - Project specific evaluation required. Contact your local TenCate Engineer.

TenCate Paving Products

Features and Benefits					
	SEALING	STRESS RELIEF	ADHESIVE BONDING	REINFORCEMENT	REINFORCEMENT
	Moisture Barrier	Crack Stress Relief	Monolithic Bond	Bi-Axial Reinforcing	Multi-Axial Reinforcing
MPG4	✓	✓	✓		✓
MPG100	✓	✓	✓	✓	
TruPave® Engineered Paving Mat	✓	✓	✓		✓
Mirafi® MPV					
400	✓	✓	✓		
500	✓	✓	✓		
600	✓	✓	✓		
700	✓	✓	✓		
Mirafi® MTK	✓	✓	✓		

Mirafi® RSi-Series

Woven High-Performance Polypropylene Geosynthetic



PRODUCT DESCRIPTION

TenCate Mirafi® RSi-Series geosynthetics are woven geotextiles comprised of high tenacity polypropylene yarns. Mirafi® RSi woven geosynthetics yield tensile modulus up to 90,000 lbs/ft (1313 kN/m) (cross machine direction) per ASTM D4595. Mirafi® RSi-Series woven high-performance polypropylene geotextiles combine the 5 key properties for superior integration: modulus, separation, confinement, water flow and product identification.

FEATURES AND BENEFITS

- **Modulus. Separation. Confinement. Water flow. Product identification. Superior integration*.**
- **Reinforcement Strength.** Higher tensile modulus properties than the leading stabilization products.
- **Separation and Filtration.** Unique double layer construction provides an excellent separation factor with superior filtration and drainage. Uniform openings provide consistent filtration and flow characteristics of a fine to coarse sand layer.

- **Soil and Base Course Interaction.** Excellent soil and base course confinement resulting in greater load distribution.
- **Durability.** Robust damage resistance for moderate to severe stress installations

APPLICATIONS

- Paved and unpaved road design
- Subgrade Stabilization for road and rail construction
- Base Course Reinforcement for paved roads
- Reinforcement over soft ground

PROPERTIES	Test Method	Units	RS280i	RS380i	RS580i
Strength			Patent #9,404,233	Patent #8,333,220 Patent #8,598,054	
	Tensile Modulus @ 2% Strain (MD/CD)	lbs/ft (kN/m)	600 (8.8)	600/1020 (8.8/14.9)	480/1800 (7.0/26.3)
	Tensile Modulus @ 5% Strain (MD/CD)	lbs/ft (kN/m)	1620 (23.6)	1800/2256 (26.3/32.9)	1440/4380 (21.0/69.3)
Hydraulic					
Flow Rate ⁴	ASTM D4491	gal/min/ft ² (l/min/m ²)	70 (2852)	75 (3056)	75 (3056)
Permittivity ⁴	ASTM D4491	sec ⁻¹	0.9	0.9	1.0
Soil Retention					
Apparent Opening Size (AOS) ¹	ASTM D4751	U.S. Sieve (mm)	40 (0.425)	40 (0.425)	40 (0.425)
Pore Size 0 ₅₀	ASTM D6767	microns	175 ³	185 ³	192 ³
Pore Size 0 ₉₅	ASTM D6767	microns	273 ³	365 ³	337 ³
Soil Interaction					
Interaction Coefficient ^{2,5}	ASTM D6706	—	0.89 ⁴	0.89 ⁴	0.9 ⁴
Factory Seam Strength ⁵	ASTM D4884	lbs/ft (kN/m)	2400 (35.0)	2700 (39.4)	3000 (43.8)
UV Resistance (at 500 hours ⁵)	ASTM D4355	% strength retained	90	90	90

NOTE: All Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV).

MD: Machine Direction, CD: Cross-Machine Direction

¹ Maximum Opening Size

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

³ Typical Value

⁴ Minimum Roll Value

⁵ Minimum Test Value

* Integration refers to the overall set of described characteristics based on a review of technical specifications for comparable products published by their respective manufacturers. Individual characteristics of these products vary and may meet, exceed, or fall below one or more of the above described individual characteristics.

Mirafi® H₂Ri

Revolutionary Woven Geosynthetic

Roadway Reinforcement



DRAINAGE



CONFINEMENT



FILTRATION



REINFORCEMENT



SEPARATION



WICKING

PRODUCT DESCRIPTION

Mirafi® H₂Ri woven geosynthetic is a revolutionary wicking geosynthetic created from super high-tenacity polypropylene filaments and patented wicking filaments formed into an innovative weave to provide superior reinforcement strength and soil interaction integrated with high soil retention and wicking capabilities.

FEATURES AND BENEFITS

- **Wicking Capability.** Special hydrophilic and hygroscopic 4DG™ Fibers that provides wicking action through the plane of the geosynthetic.
- **Reinforcement Strength.** Higher tensile modulus properties than leading stabilization products.
- **Separation and Filtration.** Unique double layer construction provides an excellent separation factor with superior filtration and drainage.
- **Soil and Base Course Interaction.** Excellent soil and base course confinement resulting in greater load distribution.

- **Durability.** Robust damage resistance for moderate to severe stress installations.

APPLICATIONS

When superior performance, flexibility and versatility are necessary, Mirafi® H₂Ri -Series makes the difference for varying application needs including:

- Base Course Reinforcement
- Subgrade Stabilization
- Roadway & Railway Construction
- Frost Heave/Frost Boils
- Expansive Clay Soils

PROPERTIES (MARV)	Test Method	Units	H ₂ Ri
Minimum Average Roll Value (MARV)			
Strength			
Wide Width Tensile (CD)	ASTM D4595	lbs/ft (kN/m)	5280 (77.0)
Wide Width Tensile @ 2% Strain (CD)	ASTM D4595	lbs/ft (kN/m)	1080 (15.8)
Minimum Roll Value			
Hydraulic			
Permittivity	ASTM D4491	sec ⁻¹	0.40
Flow Rate	ASTM D4491	gal/min/ft ² (l/min/m ²)	30 (1222)
Soil Retention			
Apparent Opening Size (AOS) ¹	ASTM D4751	U.S. Sieve (mm)	40 (0.43)
Typical Roll Value			
Pore Size 0 ₅₀	ASTM D6767	microns	85
Pore Size 0 ₉₅	ASTM D6767	microns	195
Minimum Test Value			
Wet Front Movement ¹ (24 minutes)	ASTM C1559 ²	inches	6.0 vertical direction
Wet Front Movement ¹ (983 minutes)	ASTM C1559 ²	inches	73.3 horizontal direction

Patent #'s 8,070,395

¹ 'STP': Standard Temperature and Pressure

² Modified

Mirafi® MPG

Composite Paving Grids

Pavement Solutions



PRODUCT DESCRIPTION

Mirafi® MPG4 is a multi-axial composite paving interlayer comprised of a lightweight polypropylene fabric reinforced with continuous filament fiberglass, mechanically fastened in the machine, cross and bias angle directions. This unique patent pending paving interlayer is designed for highly distressed pavement conditions and in addition, the material provides a moisture barrier against further moisture intrusion. The lightweight polypropylene fabric requires less asphalt tack, saving on installation costs without compromising performance.

Mirafi® MPG is a glass reinforced paving composite comprised of fiberglass filament yarn incorporated into a nonwoven polypropylene paving fabric. This composite paving grid combines the excellent reinforcing properties of glass filaments with optimum liquid asphalt retention capacity of an AASHTO nonwoven paving fabric.

FEATURES AND BENEFITS

- **Reinforcement.** Provides high tensile strength at low strain rates (< 3%).
- **Cost effectiveness.** Suitable for full width overlay, local patch and joint repair.
- **Sealing.** Asphalt saturated paving fabric reduces water intrusion into pavement structure.

- **Longevity.** Maintenance intervals are considerably extended.
- **Stress relief.** Retards crack propagation from the old surface to the new overlay.
- **Adhesive bonding.** Provides uniform bonding between old and new asphalt layers.
- **Installation.** Easily installed with conventional equipment.
- **Recycling.** Can be milled without problem.

APPLICATIONS

Mirafi® MPG paving composite grid products are specifically designed for full width applications in the construction and repair of flexible (asphalt) and rigid (concrete) pavements.

Mirafi® MPG paving composite is ideal for:

- Highways
- Urban Streets
- Airports
- Bridge Decks
- Parking Lots
- Shopping Centers

PROPERTIES	Test Method	Units	MPG100	MPG4
Tensile Strength @ 0°	ASTM D6637	lbs/in (kN/m)	655 (115)	459 (80)
Tensile Strength @ 90°	Method A modified	lbs/in (kN/m)	655 (115)	459 (80)
Tensile Strength @ 45°				459 (80)
Tensile Elongation		%	< 3	< 3
Melting Point	ASTM D276	F° (C°)	Glass filaments are incombustible and temperature resistant up to 752° (400°)	
Asphalt Retention	ASTM D6140	gal/yd2 (l/m2)	0.27 (1.2)	0.17 (0.8)
Mass/Unit Area	ASTM D5261	oz/yd2 (g/m2)	20.0 (678)	18.8 (637)
Glass by Weight		%	77.4	85

NOTE: All values are average roll values unless stated otherwise.

Tensile strength values refer to strength of the glass filaments.

Mirafi® MPV Nonwoven Asphalt Overlay Fabric

TruPave® Engineered Paving Mat



MIRAFI® MPV DESCRIPTION

Mirafi® MPV nonwoven asphalt overlay systems are needle punched, heatset, polypropylene nonwoven fabrics with high asphalt absorption and specifically designed for asphalt overlay applications.

FEATURES & BENEFITS

- Conforms with AASHTO M288-06 guidelines for paving fabrics
- Provides a waterproof barrier for subgrade soil protection
- Retards the propagation of an existing crack through the new overlay (reflective cracking)
- Extends the useful life of overlays
- Strengthens entire pavement system

APPLICATIONS

- Highways
- Bridges
- Runways
- Streets
- Parking Lots
- Basketball Courts
- Tennis Courts
- Running Tracks
- Golf Cart Paths
- Playgrounds

TRUPAVE® PAVING MAT DESCRIPTION

TruPave® is a hybrid fiberglass and polyester paving mat, that when saturated in asphalt cement, forms a monolithic water barrier to limit water intrusion in the pavement. In addition,

TruPave® has high tensile strength at low elongation (strain), that is, energy is absorbed and dispersed, mitigating the advent of reflective cracking.

FEATURES & BENEFITS

- Millable and recyclable: TruPave® will breakdown under milling operations due to the unique use of fiberglass and polyester fibers.
- Improves fatigue resistance in flexible pavements.
- TruPave's® unique nonwoven fiber matrix construction provides for a multi-directional, 360° stress relief interlayer. As pavements exhibit cracking in all directions, TruPave's® tensile strength and low elongation attributes are translated to the pavement section, mitigating further crack development; in all directions.
- Helps to reduce the long-term maintenance and rehabilitation costs associated with pavements.
- Withstands the higher temperatures of today's hot mix asphalt paving mixes.

APPLICATIONS

- Highways
- Urban Streets
- Airports
- Bridge Decks
- Parking Lots
- Shopping Centers

MIRAFI® MPV

PROPERTIES	Test Method	Units	MPV 400	MPV 500	MPV 600	MPV 700
Grab Tensile Strength	ASTM D4632	lbs (N)	90 (401)	101 (450)	125 (556)	150 (668)
Grab Tensile Elongation	ASTM D4632	%	50	50	50	50
Asphalt Retention ³	ASTM D6140	gal/yd ² (l/m ²)	≥ 0.20 (0.91)	≥ 0.20 (0.91)	≥ 0.22 (1.0)	≥ 0.25 (1.14)
Melting Point ³	ASTM D276	°F (°C)	320 (160)	320 (160)	320 (160)	320 (160)
Mass Per Unit Area	ASTM D5261	oz/yd ² (g/m ²)	3.5 (119)	4.1 (140)	4.6 (156)	6.0 (203)

TRUPAVE®

PROPERTIES	Test Method	Units	TruPave	Max
Tensile Strength (MD)	ASTM D5035	lbf/2 in	80	
Tensile Strength (CD)	ASTM D5035	lbf/2 in	70	
Tensile Strength (bias angle) ¹	ASTM D50352	lbf/2 in	70	
Elongation @max load	ASTM D5035	%	<5	
Melting Point ³	ASTM ED276	F° (C°)	>446 (>230)	

NOTE: All Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV). MD: Machine Direction, CD: Cross-Machine Direction

¹ In paving applications, bias angle tensile strength can be a factor in mitigating multi-directional crack propagation

² Modified test sample is cut on a 450 angle and tested according to ASTM D5035.

Nonwoven Polypropylene Geotextile



FEATURES AND BENEFITS

- **Cost effective.** Miraf[®] N-Series nonwoven polypropylene geotextiles provide economical solutions to many civil engineering applications including a cost-effective alternative to graded-aggregate filters.

Mirafi® N-Series nonwoven polypropylene geotextiles are used in a wide variety of applications including separation, filtration, and protection applications.

- Lightweight nonwovens are predominantly used for subsurface drainage applications along highways, within embankments, under airfields, and athletic fields. For these drainage structures to be effective, they must have a properly designed protective filter.
- Heavyweight nonwovens are used in critical subsurface drainage systems, soil separation, permanent erosion control, and geomembrane liner protection within landfills. These geotextiles provide the required strength and abrasion resistance to withstand installation and application stresses to create an effective, long-term solution.

[illegible]

Mirafi® FW-Series

Woven Monofilament Polypropylene Geotextile

Drainage & Filtration



EROSION PROTECTION



FILTRATION



SEPARATION

PRODUCT DESCRIPTION

Mirafi® FW woven monofilament polypropylene geotextiles are woven fabrics of monofilament and multifilament yarn construction which are highly UV stabilized. Mirafi® FW woven monofilament polypropylene geotextiles have high strengths for durability and survivability; consistent, measurable pore sizes; and high percent open area for long-term clogging resistance and high flow rates. Mirafi® FW woven monofilament polypropylene geotextiles are manufactured with highly specialized processes to produce unique physical and hydraulic properties not possible with standard geotextiles, woven or nonwoven.

FEATURES AND BENEFITS

- **Filtration.** Resists clogging while maintaining flow rate in high gradient and dynamic flow conditions. Exhibits high percent open area.
- **Strength.** High survivability rating in aggressive installation and loading conditions such as back dumping of large rip rap or underwater placement.

- **Performance.** Resistant to chemicals in aggressive landfill environments. Highly uniform opening size (AOS). Maintains high long-term flow rates.

APPLICATIONS

- Underneath rip rap or concrete revetment systems along inland waterways and coastal shorelines.
- Underneath armor systems; protecting spillways and embankment dams from overtopping flow.
- Encapsulating cut-off drains and collection systems surrounding landfills, within dams, and adjacent to roadways and other critical structures.
- Encapsulating leachate collection systems under landfills while maintaining long-term clogging resistance.
- Encapsulating edge drains for critical structures in problematic soils.

PROPERTIES	Test Method	Units	FW300	FW402	FW403	FW404	FW500 ¹	FW700
Minimum Average Roll Value (MARV)								
Grab Tensile Strength (MD)	ASTM D4632	lbs (N)	400 (1780)	365 (1624)	425 (1891)	400 (1780)	375 (1669)	370 (1647)
Grab Tensile Strength (CD)	ASTM D4632	lbs (N)	335 (1491)	200 (890)	350 (1558)	315 (1402)	375 (1669)	250 (1113)
Grab Tensile Elongation (MD/CD)	ASTM D4632	%	20/15	24/10	21/21	15/15	15/8	15/15
Trapezoid Tear Strength (MD)	ASTM D4533	lbs (N)	145 (645)	115 (512)	145 (645)	150 (668)	120 (534)	100 (445)
Trapezoid Tear Strength (CD)	ASTM D4533	lbs (N)	125 (556)	75 (334)	125 (556)	165 (734)	120 (534)	60 (267)
CBR Puncture Strength	ASTM D6241	lbs (N)	1250 (5563)	675 (3004)	1340 (5963)	1150 (5118)	1200 (5340)	950 (4228)
Maximum Opening Size								
Apparent Opening Size	ASTM D4751	US Sieve (mm)	30 (0.60)	40 (0.425)	40 (0.425)	40 (0.425)	50 (0.30)	70 (0.212)
Minimum Roll Value								
Permittivity	ASTM D4491	sec ⁻¹	1.50	2.1	0.96	0.90	0.20	0.28
Flow Rate	ASTM D4491	gal/min/ft ² (l/min/m ²)	115 (4685)	145 (5907)	70 (2852)	70 (2852)	15 (611)	18 (733)

NOTE: MD: Machine Direction, CD: Cross Direction

¹Cross direction yarns are slit film.

Miragrid® XT Uniaxial Geogrid

Miramesh® Biaxial Geosynthetics

Retaining Walls & Slopes



MIRAGRID® XT DESCRIPTION

Miragrid® XT uniaxial geogrids are high strength, high tenacity, high molecular weight polyester geogrids in a full range of tensile strengths to meet the most demanding applications of soil reinforcement. Miragrid® XT uniaxial geogrids are woven and then coated with a polymer coating to provide dimensional stability.

FEATURES AND BENEFITS

- NTPEP Evaluated
- No Recoiling
- Flexible and Tough
- Lightweight
- Cost Effective
- Easy Handling
- Wide Rolls
- Custom Fabrication of Rolls
- High Long Term Design Strengths (LTDS)

APPLICATIONS

Applications where long term design strength is necessary for the stability of the structure are ideal applications where Miragrid® XT uniaxial geogrids can be used, including:

- MSE Walls
- Steep Reinforced Slopes
- Reinforcement in Landfill Applications
- Embankments

PROPERTIES	Test Method	Units	2XT	3XT	5XT	7XT	8XT	10XT	20XT	22XT	24XT
Wide Width Tensile ¹ Strength @ Ultimate (MD)	ASTM D6637 (Method B)	lbs/ft (kN/m)	2000 (29.2)	3500 (51.1)	4700 (68.6)	5900 (86.1)	7400 (108.0)	9500 (138.6)	13705 (200.0)	20559 (300.0)	27415 (400.0)
Creep Rupture ² Strength (MD)	ASTM D5262/D6992	lbs/ft (kN/m)	1379 (20.0)	2414 (35.2)	3241 (47.3)	4069 (59.4)	5103 (74.5)	6552 (95.6)	9452 (137.9)	14179 (206.9)	18907 (275.9)
Long Term Design ³ Strength (MD)	silty sand	lbs/ft (kN/m)	1142 (17.0)	1999 (29.2)	2684 (39.2)	3370 (49.2)	3927 (57.3)	5042 (73.6)	7540 (110.0)	11311 (165.0)	15083 (220.1)

¹ Minimum Average Roll Values (MARV) shown above are based on QC Testing per a defined lot not to exceed 12 months. Testing Frequency follows ASTM D4354, Table 1.

² 75-year design life based on NTPEP Report REGEO-2011-01-001 and REGEO-2015-01-002.

³ Long Term Design Strength for Type 3 Backfill (Silty Sand), 6-inch lift / 25,000-lb roller. RFCR = 1.45; RFID = 1.05; RFD = 1.15 (Installation damage reduction factor for other soils available upon request).

MIRAMESH® DESCRIPTION

Miramesh® GR is an open mesh, biaxial geosynthetic designed specifically to be a face wrap material for steepened slope applications.

Miramesh® SG combines the biaxial geosynthetic with synthetic grass green fibers to produce a finished grass face without the need for vegetation.

FEATURES AND BENEFITS

- Vegetation Support
- Strength
- Color
- Highly Flexible
- UV Stability
- Vegetated Face

APPLICATIONS

Miramesh® provides surface erosion protection and secondary reinforcement. The erosion protection facilitates establishment of vegetation and provides structural support for the forming of over-steepened slopes.

- Slopes: Vegetated & Wrapped Face
- Walls: Permanent & Temporary

PROPERTIES	Test Method	Units	GR	FR	TR
Tensile Strength @ Ultimate (MD/CD)	ASTM D4595	lbs/ft (kN/m)	1440/1733 (21.0/25.3)	1440/1733 (21.0/25.3)	2100/2100 (30.6/30.6)
Creep Reduced ¹ Strength (MD)	ASTM D5262	lbs/ft (kN/m)	471 (6.9)	471 (6.9)	686 (10.0)
Long Term Allowable ¹ Design Load (MD)	GRI GT-7 (sand, silt, clay)	lbs/ft (kN/m)	407 (5.9)	407 (5.9)	594 (8.7)
Aperture Size (MD/CD)		in (mm)	.08 (2)/.08 (2)	.08 (2)/.08 (2)	0.08 (2)/.12 (3)
Life Expectancy	See Note ²	years	75	75	
Product Application Color			Permanent Green	Flame Retardant Black	Temporary Black

NOTE: Values shown are minimum average roll values.

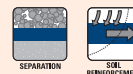
¹ Minimum Test Value

² Extrapolated from the average half-life based on ASTM D7238 (QUV). Data also found in the Miraf® Durability Technical Note.

Mirafi® PET-Series

Woven High-Strength Polyester Geotextiles

Embankments



PRODUCT DESCRIPTION

Mirafi® PET woven high-strength polyester geotextiles are woven geotextiles comprised of high tenacity, high molecular weight polyester yarns. Mirafi® PET woven high-strength polyester geotextiles yield ultimate tensile strengths up to 68,500 lbs/ft (1000 kN/m), machine direction, per ASTM D4595 and Long Term Design Strengths up to 35,600 lbs/ft (520 kN/m) per GRI-GT7. Mirafi® PET woven high-strength polyester geotextiles combine the properties of high tensile strength with excellent creep resistance to provide superior long term design strengths.

FEATURES AND BENEFITS

- **Creep Resistance.** Polyester fibers provide excellent creep resistance which results in higher long term design strengths per GRI-GT7 requirements.
- **Strength.** Higher tensile strength than any comparable product.
- **Soil Interaction.** Excellent soil confinement resulting in greater load distribution.

- **Seams.** Panels can be sewn together in the factory or field to facilitate installation.
- **Cost.** Woven reinforcement geotextiles provide low cost strengths for reinforced soil structures.

APPLICATIONS

For any application where long term design of earth reinforcement structures are involved, Mirafi® PET woven high-strength polyester geotextiles is the logical choice. Because of their flexibility and versatility, woven geotextiles are used in a variety of soil reinforcement applications, including:

- Embankments on Soft Foundations
- Retaining Walls
- Steepened Slopes
- Liner Support
- Voids Bridging
- Reinforcement Over Soft, Hazardous Pond Closures

PROPERTIES	Test Method	Units	PET 70/70	PET 100	PET 150	PET 200	PET 300	PET 400/50	PET 600/100	PET 1000/100
Wide Width Tensile Strength										
Strength @ Ultimate (MD)	ASTM D4595	lbs/ft (kN/m)	4800 (70.0)	7200 (105.1)	10283 (150)	13800 (201.4)	20580 (300.4)	27417 (400)	41124 (600)	68522 (1000)
Strength @ 5% Strain (MD)	ASTM D4595	lbs/ft (kN/m)	1080 (15.8)	2400 (35.0)	3600 (52.5)	6000 (87.6)	8400 (122.6)	9594 (140)	14400 (210)	27409 (400)
Strength @ 10% Strain (MD)	ASTM D4595	lbs/ft (kN/m)	3360 (49.0)	5760 (84.0)	9000 (131.3)	12000 (175.1)	16800 (245.1)	n/a n/a	n/a n/a	n/a n/a
Creep Reduced Strength	ASTM D5262	lbs/ft (kN/m)	2880 (42.0)	4320 (63.0)	6170 (90.0)	8280 (120.8)	12348 (180.2)	16447 (240)	24674 (360)	41113 ¹ (600)
Long Term Design Strength (MD)	GRI-GT7 (sand, silt, clay)	lbs/ft (kN/m)	2280 (33.2)	3420 (49.9)	4877 (71.2)	6545 (95.5)	10205 (148.9)	13590 (198.3)	20392 (298)	33980 ¹ (496)
Permittivity	ASTM D4491	sec ⁻¹	0.10	0.32	0.20	0.32	0.10	n/a	n/a	n/a

NOTE: All Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV).

MD: Machine Direction, CD: Cross-Machine Direction

¹ Machine Direction; based on third party testing.

TenCate develops and produces materials that increase performance, reduce costs and enable people to achieve what was once unachievable. Our goal is to contribute significantly to progress in the industries in which we work.

	Mirafi® RSi-Series	Mirafi® H ₂ Ri	Mirafi® N-Series	Mirafi® FW-Series	Miragrid® XT-Series	Mirafi® CR-Series
TRANSPORTATION						
Separation / Site Drainage			✓	✓		
Stabilization	✓	✓				✓
Roadway Reinforcement	✓	✓				
EROSION PROTECTION						
Armored Revetment Systems	✓		✓	✓		
REINFORCED SOIL						
Segmental Retaining Walls					✓	
Temporary Retaining Walls					✓	
Steepened Slopes					✓	
Embankments on Soft Soils	✓	✓			✓	✓
ENVIRONMENTAL						
Waste Lagoon Capping	✓					✓
Voids Bridging					✓	✓
Veneer Reinforcement					✓	✓
Geomembrane Protection			✓			

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