

GEOSYNTHETICS



Geosynthetics Quick Reference Guide



TenCate Geosynthetics

the global leader in geosynthetics













Mirafi® brand products are a specific, engineered response to a specific problem: how to enable landforms to withstand the most severe and erosive forces of nature, with the minimal use of natural resources.





























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.

Geosynthetics are an economical solution to problems that otherwise could only be solved through drastic, expensive methods.

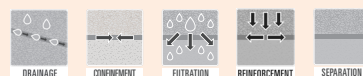
TenCate's Geosynthetic Functions Include:

Function	Description	Function	Description
 SEPARATION	The placement of a flexible, porous geotextile between dissimilar material so that the integrity and intended functions of both materials remain intact or are improved.	 EROSION PROTECTION	The use of an erosion control blanket (ECB) or turf reinforcement mat (TRM) to protect the soil surface and prevent soil particles from being detached by rainfall, flowing water, or wind.
 SOIL REINFORCEMENT	The synergistic improvement of a total system's strength created by the introduction of a reinforcing geosynthetic (that is good in tension) into a soil and/or aggregate system (that is good in compression but poor in tension).	 ADHESIVE BONDING	Adhering two different surfaces or materials using an adhesive substrate.
 CONFINEMENT	The ability of a geosynthetic to restrain lateral movement from a soil or aggregate through friction or mechanical interlock.	 SEALING	The use of a coating to create an impervious surface.
 FILTRATION	The equilibrium soil-to-geotextile system that allows for adequate movement of a liquid across the plane of the geotextile with limited soil loss over the service lifetime of the application.	 PROTECTION	The use of a geosynthetic to protect other geosynthetics against damage.
 DRAINAGE	The equilibrium soil-to-geotextile system that allows for adequate movement of a liquid across the plane of the geotextile over the service lifetime of the application.	 STRESS RELIEF	The stress reduction from a geosynthetic while the system is in a state of constant deformation or load.
 MOISTURE MANAGEMENT	The ability to move a liquid through soil-geotextile system by capillary action, neither relying on gravity nor a positive hydraulic gradient.	 REINFORCEMENT	The synergistic improvement of a total system' strength created by the introduction of a reinforcing geosynthetic (that is good in tension) into a soil and/or aggregate system (that is good in compression but poor in tension).

Application	Functions Needed	Mirafi® Product
Moisture Management	      MOISTURE MANAGEMENT REINFORCEMENT FILTRATION DRAINAGE SEPARATION CONFINEMENT	H ₂ Ri
Roadway Reinforcement (stabilization/base reinforcement)	     REINFORCEMENT SEPARATION CONFINEMENT FILTRATION DRAINAGE	RSi-Series
Engineered Structures (retaining walls/reinforced slopes/berms)	   SOIL REINFORCEMENT REINFORCEMENT EROSION PROTECTION	Miragrid® XT Geogrids and Miramesh GR
Pavement Sustainability	    SEALING ADHESIVE BONDING STRESS RELIEF REINFORCEMENT	MPG ¹ , MPG ¹ -100
Drainage and Filtration	   SEPARATION FILTRATION DRAINAGE	FW-Series, N-Series
Sludge Pond/Ash Pond Capping	    SEPARATION REINFORCEMENT FILTRATION DRAINAGE	CR-Series
Environmental/Solid Waste	   PROTECTION FILTRATION DRAINAGE	S-Series
GRS-IBS, Embankments on Soft Ground, Veneer Reinforcement, Soft Ground Engineering	Contact your local TenCate Geosynthetics Representative to identify the optimum Mirafi® product for your project.	

Mirafi® RSi-Series

Roadway Reinforcement



PRODUCT DESCRIPTION

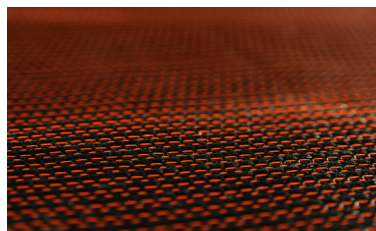
TenCate Mirafi® RSi-Series geosynthetics are woven geotextiles comprised of high tenacity polypropylene yarns. Mirafi® RSi woven geosynthetics provide tensile strength at 5% strain up to 4,380 lb/ft (63.9 kN/m) (cross machine direction) per ASTM D4595. Mirafi® RSi-Series woven high-performance polypropylene 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.

APPLICATIONS

- Subgrade Stabilization for road and rail construction
- Base Course Reinforcement for paved roads
- Stabilization/Reinforcement for subgrade and base course in all paved and unpaved roadway and railway construction



Breakthrough Research: TenCate Mirafi® Geosynthetics Outperforms Others in Independent Full-Scale Study.

PROPERTIES	Test Method	Units	RS280i	RS380i	RS580i
Strength			Patent pending	Patent #8,333,220 Patent #8,598,054	
Tensile Modulus @ 2% Strain (CD)	ASTM D4595	lb/ft (kN/m)	660 (9.6)	1020 (14.9)	1800 (26.3)
Tensile Modulus @ 5% Strain (CD)	ASTM D4595	lb/ft (kN/m)	1632 (23.8)	2256 (32.9)	4380 (63.9)
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 O ₉₅	ASTM D6767	microns	360	392	394
Pore Size O ₈₅	ASTM D6768	microns	295	328	330
Pore Size O ₆₀	ASTM D6769	microns	250	245	248
Pore Size O ₅₀	ASTM D6770	microns	220	195	208
Soil Interaction					
Interaction Coefficient ²	ASTM D5321	—	0.89 ⁴	0.89 ⁴	0.9 ⁴
UV Resistance (at 500 hours ⁴)	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 ASTM D4751: AOS is a Maximum Opening Diameter Value

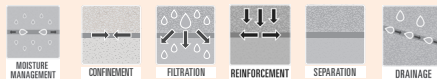
² Interaction Coefficient value is for sand or gravel based on testing conducted by SGI Testing Services.

³ Typical Values

⁴ 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.

Note: Reader should consult full product Technical Data Sheets for Performance Values.



PRODUCT DESCRIPTION

Mirafi® H₂Ri integrates the traditional reinforcement and stabilization functions with a **continuous moisture management system** 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 moisture management capabilities.

FEATURES AND BENEFITS

- **Moisture Management System.** Special hydrophilic and hygroscopic fibers that provides a continuous moisture management system through the plane of the geosynthetic.
- **Reinforcement Strength.** Higher tensile modulus properties than conventional geotextile products.
- **Separation and Filtration.** Unique double layer construction provides an excellent separation factor with superior filtration and drainage.

APPLICATIONS

- Pavement Modulus Improvement
- Base Course Reinforcement/Subgrade Stabilization
- Frost Heave/Frost Boils Mitigation
- Expansive Clay Soils



PROPERTIES (MARV)	Test Method	Units	H ₂ Ri
Minimum Average Roll Value (MARV)			
Strength			
Wide Width Tensile (CD)	ASTM D4595	lb/ft (kN/m)	5280 (77.0)
Wide Width Tensile @ 2% Strain (CD)	ASTM D4595	lb/ft (kN/m)	1080 (15.8)
Minimum Roll Value			
Hydraulic			
Permittivity	ASTM D4491	sec ⁻¹	0.4
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 (0.425)
Typical Roll Value			
Pore Size O ₅₀	ASTM D6767	microns	85
Pore Size O 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
7,874,767



¹ 'STP': Standard Temperature and Pressure

² Modified



PRODUCT DESCRIPTION

Mirafi® MPG is a multi-axial composite paving grid interlayer comprised of a lightweight polypropylene fabric reinforced with continuous filament fiberglass, mechanically fastened in the machine, cross and bias angle directions. Mirafi® MPG paving grids are 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. MPG4 is a quad-axial paving grid with balanced tensile strength.

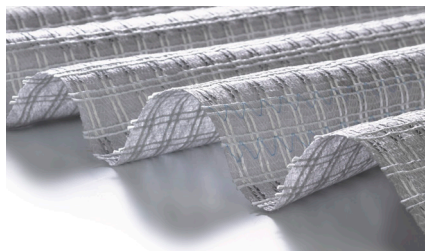
FEATURES AND BENEFITS

- **Reinforcement.** Provides quad-axial 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.

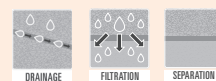
APPLICATIONS

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



PROPERTIES	Test Method	Units	MPG ⁴ -100	MPG ⁴
Minimum Average Roll Value				
Tensile Strength @ 0°	ASTM D6637	lb/in (kN/m)	570 (100)	345 (60)
Tensile Strength @ 90°	Method A	lb/in (kN/m)	570 (100)	345 (60)
Tensile Strength @ 45°	modified		570 (100)	345 (60)
Tensile Strength @ -45°			570 (100)	345 (60)
Tensile Elongation		%	< 3	< 3
Melting Point	ASTM D276	°F (°C)	Glass filaments are incombustible and temperature resistant up to 752° (400°)	
Glass by Weight		%		
Mass/Unit Area	ASTM D5261	oz/yd ² (g/m ²)	23.3 (790)	16.6 (563)
Minimum Test Value				
Asphalt Retention	ASTM D6140	gal/yd ² (l/m ²)	0.23 (1.0)	0.17 (0.8)

NOTE: Tensile strength values refer to strength of the glass filaments.



PRODUCT DESCRIPTION

Mirafi® N-Series nonwoven polypropylene geotextiles are geotextiles comprised of polypropylene staple fibers. Mirafi® N-Series nonwoven polypropylene geotextiles provide excellent physical and hydraulic properties, specifically high flow rates with small opening sizes.

FEATURES AND BENEFITS

- **Construction.** Mirafi® N-Series nonwoven polypropylene geotextiles easily conform to the ground or trench surface for trouble-free installation.
- **Strength.** Mirafi® N-Series nonwoven polypropylene geotextiles withstand severe installation stresses with high puncture and burst resistance.
- **Filtration.** High permeability properties provide high water flow rates while providing excellent filtration properties.
- **Environmental.** Mirafi® N-Series nonwoven polypropylene geotextiles are chemically stable in a wide range of aggressive environments.
- **Cost effective.** Mirafi® N-Series nonwoven polypropylene geotextiles provide a cost-effective solution for a wide range of applications.

textiles provide economical solutions to many civil engineering applications including a cost-effective alternative to graded-aggregate filters.

APPLICATIONS

Mirafi® N-Series nonwoven polypropylene geotextiles are used in a wide variety of applications including filtration, drainage, and separation 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, where high installation stresses are expected. These geotextiles provide the required strength and abrasion resistance to withstand installation and application stresses to create an effective, long-term solution.

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Mirafi® S-Series

Protection with Drainage & Filtration



PROTECTION



DRAINAGE



FILTRATION



SEPARATION

PRODUCT DESCRIPTION

Mirafi® S-Series nonwoven polypropylene geotextiles are geotextiles comprised of polypropylene staple fibers. Mirafi® S-Series nonwoven polypropylene geotextiles provide excellent physical and hydraulic properties in addition to cushioning and protection.

FEATURES AND BENEFITS

- **Construction.** Mirafi® S-Series nonwoven polypropylene geotextiles are flexible for trouble-free installation.
- **Strength.** Mirafi® S-Series nonwoven polypropylene geotextiles withstand severe installation stresses with high puncture and burst resistance.
- **Filtration.** High permeability properties provide high water flow rates while providing excellent filtration properties.
- **Environmental.** Mirafi® S-Series nonwoven polypropylene geotextiles are chemically stable in a wide range of aggressive environments.

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

APPLICATIONS

Mirafi® S-Series nonwoven polypropylene geotextiles are used primarily for cushioning and protection.

- Manufactured to a minimum weight and thickness properties, S-Series nonwovens are primarily used in Environmental Applications

PROPERTIES	Test Method	Units	\$600	\$800	\$1000	\$1200	\$1600	\$2400	\$3200
Minimum Average Roll Value (MARV)									
Grab Tensile Strength	ASTM D4632	lb (N)	170 (757)	230 (1024)	270 (1202)	320 (1424)	425 (1891)	500 (2225)	830 (3694)
Grab Tensile Elongation	ASTM D4632	%	50	50	50	50	50	50	50
Trapezoid Tear Strength	ASTM D4533	lb (N)	70 (312)	95 (423)	105 (467)	125 (556)	155 (690)	200 (890)	300 (1335)
CBR Puncture Strength	ASTM D6241	lb (N)	450 (2003)	600 (2670)	725 (3226)	900 (4005)	1200 (5340)	1800 (8010)	2200 (9790)
Maximum Opening Size									
Apparent Opening Size	ASTM D4751	US Sieve (mm)	80 (0.18)	100 (0.15)	100 (0.15)	100 (0.15)	100 (0.15)	100 (0.15)	100 (0.15)
Minimum Roll Value									
Permittivity	ASTM D4491	sec ⁻¹	1.5	1.4	1.2	0.9	0.7	-	-
Flow Rate	ASTM D4491	gal/min/ft ² (l/min/m ²)	110 (4481)	110 (4481)	85 (3463)	65 (2648)	50 (2037)	-	-
Minimum Test Value									
UV Resistance (at 500 hrs)	ASTM D4355	% strength	80	80	80	80	80	70	80

Mirafi® FW-Series

Drainage & Filtration



EROSION PROTECTION



FILTRATION



SEPARATION

PRODUCT DESCRIPTION

Mirafi® FW-Series woven monofilament polypropylene geotextiles are woven fabrics of monofilament and multifilament yarn construction which are highly UV stabilized. Mirafi® FW-Series 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-Series 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	lb (N)	400 (1780)	365 (1624)	425 (1891)	400 (1780)	375 (1669)	370 (1647)
Grab Tensile Strength (CD)	ASTM D4632	lb (N)	335 (1491)	200 (890)	350 (1558)	320 (1424)	375 (1669)	250 (1113)
Grab Tensile Elongation (MD/CD)	ASTM D4632	%	20/15	24/10	21/21	15/15	15/7	15/15
Trapezoid Tear Strength (MD)	ASTM D4533	lb (N)	145 (645)	115 (512)	145 (645)	150 (668)	120 (534)	100 (445)
Trapezoid Tear Strength (CD)	ASTM D4533	lb (N)	125 (556)	75 (334)	125 (556)	165 (734)	120 (534)	60 (267)
CBR Puncture Strength	ASTM D6241	lb (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.



EROSION PROTECTION



SOIL REINFORCEMENT

XT DESCRIPTION

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

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 a long term design strength (LTDS) 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 Strength @ Ultimate (MD)	ASTM D6637	lb/ft (kN/m)	2000 (29.2)	3500 (51.1)	4700 (68.6)	5900 (86.1)	7400 (108.0)	9500 (138.6)	13705 (200)	20559 (300)	27415 (400)
Creep Reduced Strength (MD)	ASTM D5262	lb/ft (kN/m)	1389 (20.3)	2431 (35.5)	3264 (47.6)	4097 (59.8)	5139 (75.0)	6597 (96.3)	9517 (138.9)	14277 (208.3)	19038 (277.8)
Long Term Design Strength (MD)	GRI-GG4(b) (sand, silt, clay)	lb/ft (kN/m)	1203 (17.5)	2104 (30.7)	2826 (41.2)	3547 (51.8)	4449 (64.9)	5712 (83.3)	8240 (120.2)	12361 (180.4)	16483 (240.5)

NOTE: All Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV). MD: Machine Direction, CD: Cross-Machine Direction
*Miragrid® 2XT is biaxial. All other Miragrid® XT geogrids are uniaxial.

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

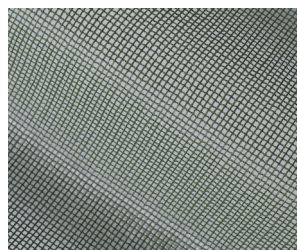
- Vegetation Support
- Strength
- Color
- Highly Flexible
- UV Stability
- Vegetated Face

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	TR
			(Patent#7,740,420)	
Tensile Strength @ Ultimate (MD/CD)	ASTM D4595	lb/ft (kN/m)	1440/1733 (21.0/25.3)	2100/2100 (30.6/30.6)
Creep Reduced Strength (MD)	ASTM D5262	lb/ft (kN/m)	471 (6.9)	686 (10.0)
Long Term Allowable Design Load (MD)	GRI GT-7 (sand, silt, clay)	lb/ft (kN/m)	407 (5.9)	594 (8.7)
Aperture Size (MD)		in (mm)	0.08 (2)	0.08 (2)
Life Expectancy	See Note ²	years	75	25
Product Application Color			Long-term/ Green	Temporary/Black

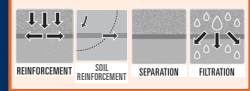


NOTE: Values shown are minimum average roll values.

² Extrapolated from the average half life based on ASTM D7238 (QUV). Data also found on Mirafi® UV Durability Tech Note.

Mirafi® CR-Series

Pond/Sludge Capping



PRODUCT DESCRIPTION

TenCate specifically developed the Mirafi® CR-Series of high-performance products for the pond capping market, including coal ash impoundments. These thoroughly engineered products allow clay or geomembrane installation, as well as construction access roads, over ponds, and sludge in the efficient, cost effective techniques.

FEATURES AND BENEFITS

- **Efficiency.** Engineered seams allow for efficient installation of large geotextile panels with extremely high seam strengths to create a stable capping system.
- **Safety.** Quickly and safely facilitates the complete closure of sludge impoundments and ponds.
- **Porous.** Allows water to pass through to relieve pore pressure.
- **Separation.** Contains fine-grained sludge material, and separates sludge from clean fill above.

APPLICATIONS

- High-Performance Geosynthetics for Ash (CCR) Pond Capping, including Pond Capping



PROPERTIES	Test Method	Units	CR220	CR 330	CR 440
Wide Width Tensile Strength					
Strength @ Ultimate (MD/CD)	ASTM D4595	lb/ft (kN/m)	4800/4800 (70.0/70.0)	7740/5820 (113/85)	7200/10620 (105/155)
Strength @ 5% Strain (MD/CD)	ASTM D4595	lb/ft (kN/m)	2400/3000 (35.0/43.8)	3960/5280 (58/77)	1500/5400 (21.9/78.8)
CBR Puncture	ASTM D6241	lb (N)	2000 (8900)	2500 (11125)	2700 (12015)
Flow Rate	ASTM D4491	gal/min/ft ² (l/min/m ²)	35 (1426)	65 (2648)	30 (1222)
Pore Size 0 ₉₅	ASTM D6767	microns	555	695	577
Pore Size 0 ₅₀	ASTM D6767	microns	460	330	265
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve (mm)	30 (0.60)	20 (0.85)	30 (0.60)
Factory Sewn Seam	ASTM D4884	lb/ft (kN/m)	3000 (43.8)	3600 (52.5)	5652 (82.5)
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	80	80	85

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

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.

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365 South Holland Drive
Pendergrass, GA 30567

Tel +1 706 693 2226
www.tencategeo.us

