

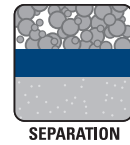


**DRAINAGE
SOLUTIONS, INC**

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TENCATE
Mirafi®



SEPARATION



DRAINAGE

Mirafi® N-Series Nonwoven Polypropylene Geotextiles for Soil Separation and Drainage

TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

The Difference Mirafi® N-Series Nonwoven Geotextiles Make:

- **Construction.** Mirafi® N-Series polypropylene nonwoven geotextiles easily conform to the ground or trench surface for trouble free installation.
- **Strength.** Mirafi® N-Series geotextiles withstand installation stresses with high puncture and tear resistance.
- **Drainage.** High permittivity properties provide high water flow rates while providing excellent soil retention.
- **Environmental.** Mirafi® N-Series geotextiles are chemically stable in a wide range of aggressive environments.
- **Cost Effective.** Mirafi® N-Series geotextiles provide economical solutions to many civil engineering applications including a cost effective alternative to graded aggregate filters.

APPLICATIONS

Mirafi® N-Series nonwoven geotextiles are used in a wide variety of applications including soil separation and drainage 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.

Mirafi® N-Series nonwoven geotextiles eliminates the challenge of determining the aggregate gradation required to match soil conditions, finding a convenient and economical source of a specific aggregate, transporting and placing graded aggregate, and assuring that the constructed in-place drainage system provides effective filter performance.

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 drainage solution.



Mirafi® N-Series Nonwoven Geotextiles

INSTALLATION GUIDELINES*

French and Trench Drains Geosynthetic Placement
Cut geosynthetic to proper width prior to placement. Width should be enough to conform to the trench perimeter with at least a 15cm (6in) top overlap. Place the geosynthetic roll over the trench, and unroll enough geosynthetic that the geosynthetic can be placed down into the trench. Anchor the edges of the geosynthetic with heavy objects to prevent the geosynthetic from falling into the trench. Where overlaps are necessary between rolls, allow for 1m (3ft) overlap from the upstream to the downstream roll.

* These guidelines serve as a general basis for installation. Detailed instructions are available from your TenCate® representative.



Protective & Outdoor Fabrics

Geosynthetics

Aerospace Composites

Industrial Fabrics

Armour Composites

Synthetic Grass

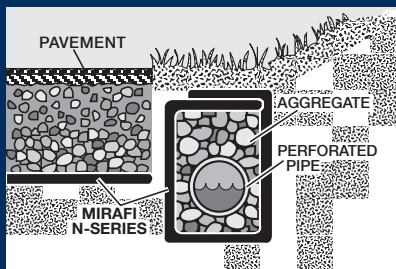
TENCATE
materials that make a difference

Mirafi® N-Series Nonwoven Polypropylene Geotextiles for Soil Separation and Drainage

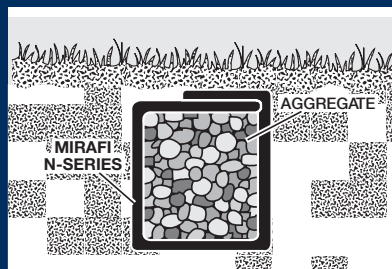
Property / Test Method	Units	140NL	140NC	140N	160N	170N	180N	1100N	1120N	1160N
MECHANICAL PROPERTIES										
Minimum Average Roll Value										
Grab Tensile Strength										
ASTM D4632										
Strength	lbs (N)	90 (401)	100 (445)	120 (534)	160 (712)	180 (801)	205 (912)	250 (1113)	300 (1335)	380 (1691)
Elongation	%	50	50	50	50	50	50	50	50	50
Trapezoid Tear Strength										
ASTM D4533	lbs (N)	40 (178)	45 (200)	50 (223)	60 (267)	75 (334)	80 (356)	100 (445)	115 (512)	140 (623)
CBR Puncture Strength										
ASTM D6241	lbs (N)	250 (1113)	250 (1113)	310 (1380)	410 (1825)	450 (2003)	500 (2224)	700 (3115)	800 (3560)	1025 (4561)
HYDRAULIC PROPERTIES										
Maximum Opening Size										
Apparent Opening Size (AOS)										
ASTM D4751	US Sieve mm	50 (0.30)	70 (0.212)	70 (0.212)	70 (0.212)	70 (0.212)	80 (0.18)	100 (0.15)	100 (0.15)	100 (0.15)
Minimum Roll Value										
Permittivity										
ASTM D4491	sec ⁻¹	2.0	2.0	1.7	1.5	1.4	1.4	0.8	0.8	0.7
Flow Rate										
ASTM D4491	gal/min/ft ² (l/min/m ²)	145 (5907)	140 (5704)	135 (5500)	110 (4481)	105 (4278)	95 (3870)	75 (3056)	65 (2648)	50 (2037)
Minimum Test Value										
UV Resistance after 500 hrs.										
ASTM D4355	% strength	70	70	70	70	70	70	70	70	70
Packaging										
Roll Width	ft (m)	12.5 (3.8) 15.0 (4.6)	12.5 (3.8) 15.0 (4.6)	12.5 (3.8) 15.0 (4.6)	15.0 (4.6)	15.0 (4.6)	15.0 (4.6)	15.0 (4.6)	15.0 (4.6)	15.0 (4.6)
Roll Length	ft (m)	360 (110)	360 (110)	360 (110)	300 (91)	300 (91)	300 (91)	300 (91)	300 (91)	150 (46)
Area	yd ² (m ²)	500 (418) 600 (502)	500 (418) 600 (502)	500 (418) 600 (502)	500 (418)	500 (418)	500 (418)	500 (418)	500 (418)	250 (209)

Note: Values and methods could change without notice

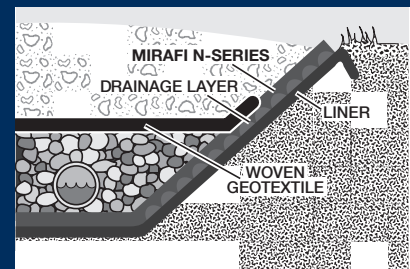
Mirafi® N-Series Nonwoven Geotextiles



**Cut-off/Interceptor Drain Along a Roadway
Or Another Critical Structure**



French Drain Without Pipe



Liner Protection Within a Landfill

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