



## 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:

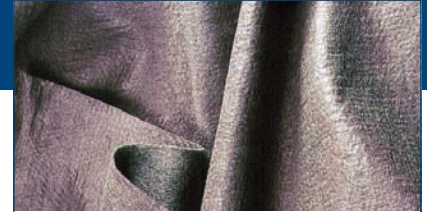
- **Construction.** Mirafi® N-Series polypropylene nonwoven geotextiles easily conform to the ground or trench surface for trouble-free installation.
- **Strength.** Mirafi® N-Series geotextiles withstand installation stresses with high puncture and tear resistance.
- **Drainage.** High permittivity 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 eliminate the problems of determining the aggregate gradation required to match soil conditions, finding a convenient and economical source of a specific aggregate gradation, transporting and placing graded aggregate, and assuring that the in-place aggregate gradation 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



Mirafi® N-Series Nonwoven Geotextiles

create an effective, long-term drainage solution.

### 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.

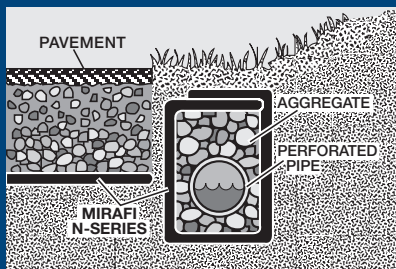


## Mirafi® N-Series Nonwoven Polypropylene Geotextiles for Soil Separation and Drainage

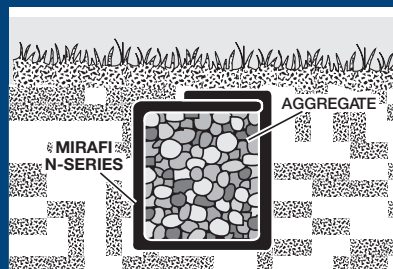
Property / Test Method	Units	140NL	140NC	140N	160N	170N	180N	1100N	1120N	1160N
<b>MECHANICAL PROPERTIES</b>										
<b>Grab Tensile Strength</b> ASTM D 4632										
Strength @ Ultimate	kN (lbs)	0.40 (90)	0.45 (100)	0.54 (120)	0.72 (160)	0.81 (180)	0.92 (205)	1.12 (250)	1.34 (300)	1.70 (380)
Elongation @ Ultimate	%	50	60	50	50	50	50	50	50	50
<b>Trapezoidal Tear Strength</b> ASTM D 4533										
	kN (lbs)	0.18 (40)	0.20 (45)	0.22 (50)	0.27 (60)	0.34 (75)	0.36 (80)	0.45 (100)	0.52 (115)	0.63 (140)
<b>Puncture Strength</b> ASTM D 4833										
	kN (lbs)	0.25 (55)	0.29 (65)	0.29 (65)	0.43 (95)	0.47 (105)	0.58 (130)	0.69 (155)	0.78 (175)	1.05 (235)
<b>CBR Puncture Strength</b> ASTM D 6241										
	kN (lbs)	1.12 (250)	1.12 (250)	1.34 (300)	1.79 (400)	2.02 (450)	2.24 (500)	3.14 (700)	3.58 (800)	4.48 (1000)
<b>UV Resistance after 500 hrs.</b> ASTM D 4355										
	% strength	70	70	70	70	70	70	70	70	70
<b>HYDRAULIC PROPERTIES</b>										
<b>Apparent Opening Size (AOS)</b> ASTM D 4751										
	US Sieve	60	70	70	70	100	80	100	100	100
	mm	0.25	0.212	0.212	0.212	0.149	0.180	0.149	0.149	0.149
<b>Permittivity</b> ASTM D 4491										
	sec <sup>-1</sup>	2.0	1.9	1.8	1.4	1.4	1.2	1.0	0.8	0.7
<b>Flow Rate</b> ASTM D 4491										
	l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	5907 (145)	5704 (140)	5500 (135)	4481 (110)	4278 (105)	3870 (95)	3056 (75)	2648 (65)	2037 (50)
<b>Packaging</b>										
Roll Width	m (ft)	3.8 (12.5) 4.5 (15.0)	3.8 (12.5) 4.5 (15.0)	3.8 (12.5) 4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)
Roll Length	m (ft)	110 (360)	110 (360)	110 (360)	91 (300)	91 (300)	91 (300)	91 (300)	91 (300)	46 (150)
Est. Gross Weight	kg (lbs)	60 (133) 70 (160)	69 (152) 83(182)	74 (164) 89 (197)	99 (217)	110 (242)	113 (250)	154 (339)	175 (386)	110 (243)
Area	m <sup>2</sup> (yd <sup>2</sup> )	418 (500) 502 (600)	418 (500) 502 (600)	418 (500) 502(600)	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	209 (250)

\*NOTE: Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV). Apparent Opening Size (AOS) properties shown are Maximum Average Roll Values. (Values and methods could change without notice)

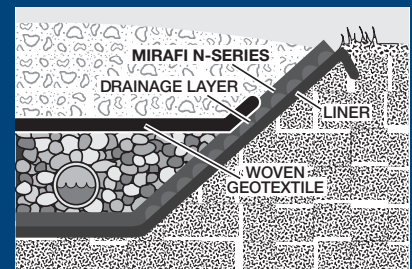
### Mirafi® N-Series Nonwoven Geotextiles



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



**French Drain Without Pipe**



**Liner Protection Within a Landfill**

TenCate Geosynthetics North America assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. TenCate Geosynthetics North America disclaims any and all express, implied, or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice.

Mirafi® is a registered trademark of TenCate Geosynthetics North America.

PDS.N1007

365 South Holland Drive Tel 800 685 9990 Fax 706 693 4400  
Pendergrass, GA 30567 Tel 706 693 2226 www.mirafi.com



**TENCATE**  
materials that make a difference