

## Mirafi® N-Series NonWoven Polypropylene Geotextiles for Soil Separation, Filtration, and Protection

Ten Cate Nicolon offers a wide range of nonwoven geotextiles for soil separation, filtration and protection. These geotextiles are cost-effective reinforcement elements which improve and enhance modern construction techniques in a variety of civil engineering applications.

### PRODUCT DESCRIPTION

Mirafi® N-Series products are nonwoven geotextiles comprised of polypropylene staple fibers. Mirafi® N-Series Nonwoven Polypropylene Geotextiles provide excellent physical and hydraulic properties in addition to high tensile strengths.

### FEATURES AND BENEFITS

- Construction.** Mirafi® N-Series geotextiles easily conform to the ground or trench surface for trouble-free installation;
- Strength.** Mirafi® N-Series 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 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 Nonwovens 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. 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.

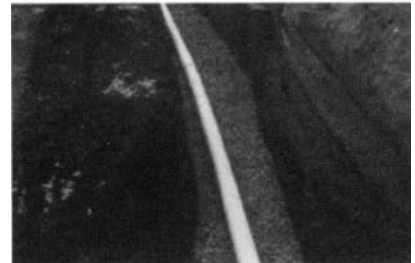
Heavyweight nonwovens are used in critical subsurface drainage systems, soil separation, permanent erosion control, and geomembrane liner protection within landfills. These geotextiles provide the required strength and abrasion resistance to withstand installation and application stresses to create an effective, long-term solution.



Mirafi® N-Series heavyweight nonwoven used as a liner protection in landfill application



Mirafi® N-Series light weight nonwoven used as protective filter in an athletic field

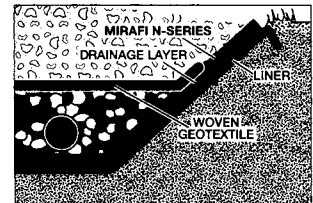


Mirafi® N-Series lightweight nonwoven used as protective filter in subsurface drainage application.

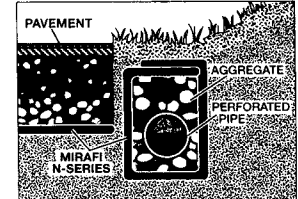
Property / Test Method	Units	140NL	140NC	140N	160N	170N	180N	1100N	1120N	1160N
<b>MECHANICAL PROPERTIES</b>										
<b>Grab Tensile Strength</b>										
ASTM D 4632										
Strength @ Ultimate	kN (lbs)	0.40 (90)	0.45 (100)	0.53 (120)	0.71 (160)	0.80 (180)	0.9 (205)	1.11(250)	1.34 (300)	1.69 (380)
Elongation @ Ultimate	%	50	50	50	50	50	50	50	50	50
<b>Mullen Burst Strength</b>										
ASTM D 3786	kPa (psi)	1205 (175)	1447 (210)	1550 (225)	2100 (305)	2273 (330)	2618 (380)	3445 (500)	4030 (585)	5098 (740)
<b>Trapezoidal Tear Strength</b>										
ASTM D 4355	kN (lbs)	0.18 (40)	0.20 (45)	0.22 (50)	0.27 (60)	0.33 (75)	0.36 (80)	0.45 (100)	0.51 (115)	0.62 (140)
<b>Puncture Strength</b>										
ASTM D 4833	kN (lbs)	0.24 (55)	0.30 (65)	0.30 (65)	0.42 (95)	0.46 (105)	0.58 (130)	0.69 (155)	0.78 (175)	1.05 (235)
<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	80	80	100	100	100
	mm	0.25	0.212	0.212	0.212	0.180	0.180	0.150	0.150	0.150
<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)	5698 (140)	5500 (135)	4477 (110)	4278 (105)	3866 (95)	3056 (75)	2648 (65)	2037 (50)
<b>Packaging</b>										
Roll Width	m(ft)	3.8 (12.5)	3.8 (12.5)	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)
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)	64 (142)	67 (148)	103 (227)	113 (249)	124 (273)	150 (331)	158(348)	114 (251)
Area	m <sup>2</sup> (yd <sup>2</sup> )	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	209 (250)

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

Liner protection within a landfill



Cut-off/inceptor drain along a roadway or other critical structure



French drain without pipe

