



Mirafi® Orange Delineation Nonwoven Geotextile for Visual Barrier, 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® Orange Nonwoven Geotextiles Make:

- **Utility Alert.** Mirafi® delineation geotextiles are a visual dig barrier designed to be placed above underground utilities.
- **Contaminated Soils.** Mirafi® delineation geotextiles separate contaminated soils from clean soils.
- **Archeological Sites.** Mirafi® delineation geotextiles assist in the long-term protection of historical sites.

APPLICATIONS

Mirafi® nonwoven geotextiles are used in a wide variety of applications in the environmental and general civil markets. These include separation, filtration and protection applications.

Mirafi® delineation geotextiles are used in many critical subsurface systems. The use of

this orange delineation fabric allows for safe excavations where utilities or other sensitive structures may be buried. The highly visible orange nonwoven geotextile serves as a warning to construction workers when the excavation reaches a buried structure.

Excavation near all utilities, (gas, electric, water, Cable TV and telephone) is always a sensitive operation. The use of Mirafi® delineation geotextile is a low cost-effective method of protection. In addition, lining trench's with a geotextile keeps the selected and costly backfill material separated from the native subgrade.

Construction in areas where contaminated soils exist poses risks when trenches or deep footings need to be excavated. These risks are minimized when the Mirafi® delineation geotextile is placed on the contaminated soils before the capping of these areas occurs. The geotextile limits particle movement between the clean new soil and the contaminated substrate. The Mirafi® delineation geotextile offers a visual barrier to future excavations of the contaminated hazard below.



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Federal and State laws require that archeological sites must be protected from adverse impacts caused by engineering projects. Many archeological sites throughout the world are left in place to protect them. In some cases, after discovery, they are buried. Sites can be protected through burial below an engineered cover, if the engineering project does not require excavation. The installation of Mirafi® delineation geotextile before the new soil is placed will aid in the long term protection of these archeological sites.

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

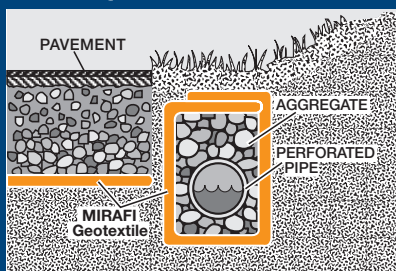


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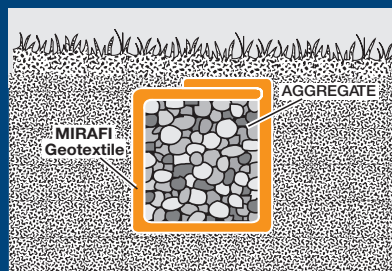
Property / Test Method	Units	140NL	160N	180N
MECHANICAL PROPERTIES				
Grab Tensile Strength ASTM D 4632				
Strength @ Ultimate	N (lbs)	445 (100)	7779 (175)	1068 (240)
Elongation @ Ultimate	%	75	75	70
Trapezoidal Tear Strength ASTM D 4533				
	N (lbs)	223 (50)	378 (85)	400 (90)
CBR Puncture Strength ASTM D 6241				
	N (lbs)	1380 (310)	2136 (480)	2802 (630)
UV Resistance after 500 hrs. ASTM D 4355				
	% strength	70	80	80
HYDRAULIC PROPERTIES				
Apparent Opening Size (AOS) ASTM D 4751				
	US Sieve	70	100	100
Permittivity ASTM D 4491				
	mm sec ⁻¹	0.212	0.15	0.15
		2.4	1.5	1.4
Flow Rate ASTM D 4491				
	l/min/m ² (gal/min/ft ²)	7130 (175)	4278 (105)	4074 (100)
Packaging				
Roll Width	m (ft)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)
Roll Length	m (ft)	110 (360)	91 (300)	91 (300)
Est. Gross Weight	kg (lbs)	65 (143)	997(215)	120(265)
Area	m ² (yd ²)		418 (500)	418 (500)

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

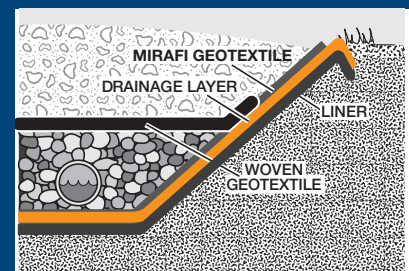
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**Cut-off/Inceptor Drain Along a Roadway Or
Another Critical Structure**



French Drain Without Pipe



Liner Protection Within a Landfill

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