

831.1 REQUIREMENTS

A. **Geotextile and Impermeable Plastic Membrane** shall meet the following requirements as applicable for the specified use. The Contractor shall provide a Certificate of Compliance verifying that the material meets the following specifications or documentation that the material is listed on the approved products list. Note: If the type of fabric to be used is not specified, Drainage Fabric - Type B shall be used. All values listed are Minimum Average Roll Values (MARV) unless otherwise specified.

ENGLISH UNITS

Fabric and Membrane Property	Test Method	Drainage Fabric		Silt Fence	Geotextile Separator		MSE Geotextile Fabric	Impermeable Plastic Membrane
		Type A	Type B		Woven	Non-Woven		
<b>PERFORMANCE CRITERIA DURING SERVICE LIFE</b>								
Equivalent or Apparent Opening Size, US Standard Sieve	ASTM D 4751	40-100	40-100	20-70 *	40-100	40-100	40-100	---
Thickness, Mils	ASTM D 1777	---	---	---	---	---	---	12
Permittivity, Sec-1	ASTM D 4491	0.2 Min	0.3 Min	0.4 Min	0.05 Min	0.1 Min	0.005 Min	<0.000010 cm/sec (6)
<b>STRENGTH REQUIREMENTS</b>								
Wide Width Strip Tensile Strength, lbs/inch Machine & X-Machine Direction	ASTM D 4595(2)	40	90	---	130	65	200	80
Grab Strength, lbs Machine & X-Machine Direction	ASTM D 4632	---	---	90 Min	---	---	---	---
Elongation at Failure, % Machine & X-Machine Direction	ASTM D 4595(2)	40 Min	50 Min	---	20 Min	20 Min	35 Max	20 Min
Burst Strength, psi	ASTM D 3786 Diaphragm Method	130	290	---	290	210	430	---
Trapezoid Tear Strength, lbs	ASTM D 4533 Any Direction	25	75	---	50	40	75	50
Puncture Strength, lbs	ASTM D 4833 (3)	25	90	---	75	50	110	60
<b>ENVIRONMENTAL REQUIREMENTS</b>								
Mildew/Rot Resistance, %	AATCC 30 1988(5)	100	100	---	100	100	100	100
Insect/Rodent Resistance, %	AATCC 24 1985(5)	100	100	---	100	100	100	100
Ultraviolet Resistance, % Strength Retention	ASTM D 4355	(4)	(4)	70	(4)	(4)	(4)	(4)
<b>TYPICAL USES</b>								
		a	b	c	d	d	e	f

METRIC UNITS

Fabric and Membrane Property	Test Method	Drainage Fabric		Silt Fence	Geotextile Separator		MSE Geotextile Fabric	Impermeable Plastic Membrane
		Type A	Type B		Woven	Non-Woven		
<b>PERFORMANCE CRITERIA DURING SERVICE LIFE</b>								
Equivalent or Apparent Opening Size, US Standard Sieve, $\mu\text{m}$	ASTM D 4751	425-150	425-150	850-212*	425-150	425-150	425-150	---
Thickness, $\mu\text{m}$	ASTM D 1777	---	---	---	---	---	---	225
Permittivity, Sec-1	ASTM D 4491	0.2 Min	0.3 Min	0.4 Min	0.05 Min	0.1 Min	0.005 Min	<0.00010 mm/sec (6)
<b>STRENGTH REQUIREMENTS</b>								
Wide Width Strip Tensile Strength, kN/m Machine & X-Machine Direction	ASTM D 4595(2)	7	16	---	22	11	35	14
Grab Strength, N Machine & X-Machine Direction	ASTM D 4632	---	---	400 Min	---	---	---	---
Elongation at Failure, % Machine & X-Machine Direction	ASTM D 4595(2)	40 Min	50 Min	---	20 Min	20 Min	35 Max	20 Min
Burst Strength, kPa	ASTM D3786 Diaphragm Method	900	2000	---	2000	1450	2960	---
Trapezoid Tear Strength, N	ASTM D 4533 Any Direction	110	330	---	220	180	330	220
Puncture Strength, N	ASTM D 4833(3)	110	400	---	330	220	490	265
<b>ENVIRONMENTAL REQUIREMENTS</b>								
Mildew/Rot Resistance, %	AATCC 30 1988(5)	100	100	---	100	100	100	100
Insect/Rodent Resistance, %	AATCC 24 1985(5)	100	100	---	100	100	100	100
Ultraviolet Resistance, % Strength Retention	ASTM D 4355	(4)	(4)	70	(4)	(4)	(4)	(4)
<b>TYPICAL USES</b>								
		a	b	c	d	d	e	f

\*Note: The actual AOS of the silt fence should only have one value for AOS on the certification. To be approved the value shall be within the allowable range specified above.

- (2) 8" wide x 4" length (200 x 100 mm) specimen tested at a strain rate of 10% (0.4 inch) (10 mm) per minute.
- (3) Using 5/16" (8 mm) diameter flat tipped steel cylinder centered with ring clamp.
- (4) Non-stabilized or low susceptible geotextiles should not be exposed to ultraviolet radiation for more than 5 days.
- (5) American Association of Textile Chemists and Colorists test procedures.
- (6) Permeability Coefficient (ASTM D 4491).

- (a) Joints for concrete pipe culverts & RC boxes, edge drains, drainage tubing, etc. Used as a general filtration fabric.
- (b) Riprap, gabions, inslopes retention on MSE backfill, etc. Use-same as (a) except has a higher construction loading.
- (c) Medians, ditches, slopes, etc. Used to filter sediment laden water.
- (d) Subgrades, embankments, etc. Used to separate granular material from subgrade.
- (e) Bridge End Backfill and reinforced slopes. Used to create a reinforced fill and/or used as the wall facing material.
- (f) Under pavements. Used to restrict the flow of fluids to underlying materials.

