

## SECTION 735—GEOTEXTILES

**735.1 GENERAL**—From a manufacturer listed in [Bulletin 15](#) and conforming to the following requirements:

**(a) Fabric.** Use fabric consisting of long chain polymeric filaments or yarns such as polyethylene, polyamide, polyvinylidene-chloride, polypropylene, or polyester formed into a stable network so that the filaments or yarns retain their relative position to each other. For Class 1, Class 2, and Class 3 Geotextiles, use woven or non-woven fabric. For Class 4 Separation Geotextiles, use a needle-punched “felt-like” non-woven fabric. For Class 4 Stabilization and Reinforcement Geotextiles, use a high strength woven fabric. Use fabric inert to commonly encountered construction chemicals or substances. During periods of shipment and storage, protect the fabric from direct sunlight, ultra-violet rays, temperatures greater than 60 °C (140F), mud, dirt, dust, and debris. To the extent possible, wrap the fabric in a heavy-duty covering or shield from direct sunlight.

Geotextiles will be rejected at the time of installation if any defects, deterioration, or damage was incurred during manufacture, transportation, or storage.

**(b) Physical Requirements.** Table A, for the indicated construction class and type.

**(c) Acceptance.** Acceptance of the geotextile will be based on certified test data submitted by the manufacturer and on testing by MTD.

**(d) Certification.** Certify each shipment as specified in [Section 106.03\(b\)3](#). Visibly label all shipments on the fabric or its container with the manufacturer's name, fabric type or trade name, lot number, and material quantity.

**TABLE A (Metric)  
Geotextile Physical Requirements<sup>(1)</sup>**

Fabric Properties	Test Method	Construction Class							
		Class 1	Class 2		Class 3 <sup>(2)</sup>		Class 4		
		Subsurface Drainage	Erosion Control		Sediment Control		Separation	Stabilization	Reinforcement
			Type A	Type B	Type A	Type B	Type A	Type B	Type C
1. Grab Tensile Strength, kg	<a href="#">ASTM D 4632</a>	72	91	41	91	41	122	181 <sup>(6)</sup>	227 <sup>(6)</sup>
2. Grab Tensile Elongation, %	<a href="#">ASTM D 4632</a>	20 min	15-50	15 min	15-50	15 min	50 min	20 max	20 max
3. Burst Strength, kPa	<a href="#">ASTM D 3786</a>	1300	2200	965	2200	965	2965	—	—
4. Puncture, kg (8 mm flat-end rod)	<a href="#">ASTM D 4833</a>	25	36	18	36	18	45	64	91
5. Trapezoid Tear Strength, kg	<a href="#">ASTM D 4533</a>	25	23	14	23	14	45	—	—
6. Apparent Opening Size (AOS) Sieve No.	<a href="#">ASTM D 4751</a>	(3), (4)	(3), (4)	(3), (4)	850 µm max	850 µm max	(3), (4)	>600 µm	>600 µm
7. Permeability, K, cm/sec	<a href="#">ASTM D 4491</a>	K fabric ≥10K soil <sup>(4)</sup>	—	—					
8. Permittivity, sec-1	<a href="#">ASTM D 4491</a>	0.2	—	—	0.01	0.01	—	—	—
9. Seam Strength, kg <sup>(5)</sup>	<a href="#">ASTM D 4632</a>	32	82	36	—	—	109	163	204
10. Ultraviolet Resistance Strength Retention, %	<a href="#">ASTM D 4355</a>	70 @ 150 hrs	70 @ 150 hrs	70 @ 150 hrs					

- (1) The numerical values indicate average minimum roll value or minimum to maximum range, except as noted.
- (2) Average minimum roll value for Class 3 material in warp direction only.
- (3) Soil with 50% or less particles by mass passing 75 µm sieve, AOS ≥ 600 µm sieve.  
Soil with more than 50% particles by weight passing 75 µm sieve, AOS > 300 µm sieve.
- (4) Design specified.
- (5) Applies to both field and/or manufactured seams.
- (6) Minimum grab tensile strength for the warp and fill direction at maximum elongation.

**TABLE A (English)**  
**Geotextile Physical Requirements<sup>(1)</sup>**

Fabric Properties	Test Method	Construction Class							
		Class 1	Class 2		Class 3 <sup>(2)</sup>		Class 4		
		Subsurface Drainage	Erosion Control		Sediment Control		Separation	Stabilization	Reinforcement
Type A	Type B		Type A	Type B	Type A	Type B	Type C		
1. Grab Tensile Strength, lbs.	<a href="#">ASTM D 4632</a>	158	200	90	200	90	270	400 <sup>(6)</sup>	500 <sup>(6)</sup>
2. Grab Tensile Elongation, %	<a href="#">ASTM D 4632</a>	20 min	15-50	15 min	15-50	15 min	50 min	20 max	20 max
3. Burst Strength, psi	<a href="#">ASTM D 3786</a>	189	320	140	320	140	430	—	—
4. Puncture, lbs. (5/16-inch flat-end rod)	<a href="#">ASTM D 4833</a>	56	80	40	80	40	100	140	200
5. Trapezoid Tear Strength, lbs.	<a href="#">ASTM D 4533</a>	56	50	30	50	30	100	—	—
6. Apparent Opening Size (AOS) Sieve No.	<a href="#">ASTM D 4751</a>	(3), (4)	(3), (4)	(3), (4)	No. 20 max	No. 20 max	(3), (4)	> No. 30	>No. 30
7. Permeability, K, cm/sec	<a href="#">ASTM D 4491</a>	K fabric ≥10K soil <sup>(4)</sup>	—	—					
8. Permittivity, sec-1	<a href="#">ASTM D 4491</a>	0.2	—	—	0.01	0.01	—	—	—
9. Seam Strength, lbs. <sup>(5)</sup>	<a href="#">ASTM D 4632</a>	70	180	80	—	—	240	360	450
10. Ultraviolet Resistance Strength Retention, %	<a href="#">ASTM D 4355</a>	70 @ 150 hrs	70 @ 150 hrs	70 @ 150 hrs					

- (1) The numerical values indicate average minimum roll value or minimum to maximum range, except as noted.
- (2) Average minimum roll value for Class 3 material in warp direction only.
- (3) Soil with 50% or less particles by weight passing No. 200 sieve, AOS ≥ No. 30 sieve.  
Soil with more than 50% particles by weight passing No. 200 sieve, AOS > No. 50 sieve.
- (4) Design specified.
- (5) Applies to both field and/or manufactured seams.
- (6) Minimum grab tensile strength for the warp and fill direction at maximum elongation.