

SuperGeo™ LL Smooth

Properties	Test Method	Minimum Average Values				
		0.50	0.75	1.00	1.50	2.00
Thickness, mm (min.ave.) • Lowest individual for any of the 10 values	ASTM D5199	0.50 mm -10%	0.75 mm -10%	1.00 mm -10%	1.50 mm -10%	2.00 mm -10%
Density, g/cm ³ (max)	ASTM D1505	.939	.939	.939	.939	.939
Tensile Properties (1) • Strength at Break, lb/in width (N) • Elongation at Break, %	ASTM D6693, Type IV	13 800	20 800	27 800	40 800	53 800
2% Modulus-(N). (max.)	ASTM D5323	210	315	420	630	840
Tear Resistance, (N)	ASTM D1004	50	70	100	150	200
Puncture Resistance,(N)	ASTM D4833	120	190	250	370	500
Axi-Symmetric Break Resistance Strain- % (min.)	ASTM D5617	30	30	30	30	30
Carbon Black Content, %	ASTM D4218 (2)	2.0 – 3.0	2.0 – 3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	ASTM D5596	Note (3)	Note (3)	Note (3)	Note (3)	Note (3)
Oxidative Induction Time (OIT) (4) (a) Standard OIT (min. ave.) ----- or ----- (b) High Pressure OIT (min. ave.)	ASTM D3895 ASTM D5885	100 400	100 400	100 400	100 400	100 400
Oven Aging at 85°C (a) Standard OIT (min. ave) -% retained after 90 days ----- or ----- (b) High Pressure OIT (min. ave.) -% retained after 90 days	ASTM D5721 ASTM D3895 ASTM D5885	35 60	35 60	35 60	35 60	35 60
UV Resistance (5) (a) Standard OIT (min. ave.) ----- or ----- (b) High Pressure OIT (min. ave) -% retained after 1600 hrs (7)	ASTM D7238 ASTM D3895 ASTM D5885	N.R (6) 35	N.R (6) 35	N.R (6) 35	N.R (6) 35	N.R (6) 35
Standard Roll Dimensions						
Roll Length (8), meters		405.38	368.80	277.36	182.88	123.44
Roll Width (8), meters		6.705	6.705	6.705	6.705	6.705
Roll Area, meters ²		2718.07	2472.80	1859.69	1226.21	827.66

- (1) Machine direction (MD) and cross machine direction (TD) average values should be on the basis of 5 test specimens each direction.
 - Break elongation is calculated using a gage length of 2.0 in at 2.0 in./min
- (2) Other methods such as D 1603 (tube furnace) or D 6370 (TGA) are acceptable if an appropriate correlation to D4218 (muffle furnace) can be established.
- (3) Carbon Black dispersion (only near spherical agglomerates) for 10 different views.
 - 9 in Categories 1 or 2 and 1 in Category 3
- (4) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.
- (5) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr condensation at 60°C.
- (6) Not recommended since the high temperature of the Std-OIT test produces and unrealistic result for some of the antioxidants in the UV samples.
- (7) UV resistance is based on percent retained value regardless of the original HP-OIT value.
- (8) Roll widths and lengths have a tolerance of ± 1%

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