

# SuperGeo™ LL Smooth



Properties	Test Method	Minimum Average Values				
		20 mil	30 mil	40 mil	60 mil	80 mil
Thickness, mil (min. ave.) • Lowest individual for any of the 10 values	ASTM D5199	20 -10%	30 -10%	40 -10%	60 -10%	80 -10%
Density, g/cm <sup>3</sup> (max)	ASTM D1505	.939	.939	.939	.939	.939
Tensile Properties (1) • Strength at Break, lb/in width (mm) • Elongation at Break, %	ASTM D6693, Type IV	76 800	114 800	152 800	228 800	304 800
2% Modulus-lb/in. (max.)	ASTM D5323	1200	1800	2400	3600	4800
Tear Resistance, lb	ASTM D1004	11	16	22	33	44
Puncture Resistance, lb)	ASTM D4833	28	42	56	84	112
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
<b>Standard Roll Dimensions</b>						
Roll Length (8), ft		1,330	1,210	910	600	405
Roll Width (8), ft		22	22	22	22	22
Roll Area, ft <sup>2</sup>		29,260	26,620	20,020	13,200	8,910

- (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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