

Product Data	Test Method	LLDPE Values	HDPE Values
Thickness (nominal), mil (mm)	ASTM D5994	40 (1.02)	40 (1.02)
Thickness (min. avg.), mil (mm)	ASTM D5994	38 (0.97)	38 (0.97)
Thickness (lowest indiv.), mil (mm)	ASTM D5994	34 (0.86)	34 (0.86)
Asperity Height (min. avg.), mil (mm)	ASTM D7466	20 (0.51)	20 (0.51)
Density, g/cc	ASTM D792, Method B	0.94 (max.)	0.94 (min.)
Tensile Properties (avg. both directions)	ASTM D6693, Type IV		
Strength @Yield (min. avg.), lb/in. width (N/mm)	ASTM D6693, Type IV	N/A	88 (15.4)
Elongation @ Yield (min. avg.), % (GL=1.3 in.)	ASTM D6693, Type IV	N/A	13
Strength@Break (min. avg.), lb./in. width (N/mm)	ASTM D6693, Type IV	112 (19.6)	88 (15.4)
Elongation@Break (min. avg.), lbs. %(GL=2.0 in.)	ASTM D6693, Type IV	400	350
Tear Resistance (min. avg.), lbs. (N)	ASTM D1004	25 (111)	30 (133)
Puncture Resistance (min. avg.) lbs. (N)	ASTM D4833	50 (222)	90 (400)
Carbon Black Content (range %)	ASTM D 4218	2-3	2-3
Carbon Black Dispersion (Category)	ASTM D5596	Only near spherical agglomerates for 10 views in Cat. 1 or 2	
Stress Crack Resistance (Single Point NCTL), hours	ASTM D5397, Appendix	N/A	500
Oxidative Induction Time, minutes	ASTM D3895, 200°C, 1 atm O <sub>2</sub>	≥140	≥140

Agru America's geomembranes are certified to pass Low Temp. Brittleness via. ASTM D746 (-80°C), and Dimensional Stability via. ASTM D1204 (± 2% @ 100°C)

**ENGINEERED TURF COMPONENT**

Product Data	Test Method	Values
CBR Puncture	ASTM D6241	800 lb. (MARV)
Tensile Product (MD/XD)	ASTM D4595	1,000 lb./ft. min. (MARV)
Rainfall Induced Erosion	ASTM D6459	Infill Loss 6 in./hr. N/D (with ArmorFill™)
Aerodynamic Evaluation	GTRI Wind Tunnel	120 mph with max. uplift of 0.12 lb/sf
Engineered Turf Fiber UV Stability	ASTM G147	>60% retained tensile strength at 100 yrs. (projected)
Backing System UV Stability (Exposed)	ASTM G1545 Modified Cycle 1.UVA340	110 lbs./ft. retained tensile strength at 6500 hrs (projected)
Steady State Hydraulic Overtopping (ClosureTurf® w/ HydroBinder®)	ASTM D7277/D7276	5 ft. overtopping resulting in 29 ft/s velocity and 8.8 psf shear stress for Manning's N Value of 0.02
Full Scale Wave Overtopping Test Cumulative Volume (ClosureTurf® with HydroBinder®)	Colorado State University Wave Simulator	165,000 ft <sup>3</sup> /ft
Full Scale Wave Overtopping Test Discharge (ClosureTurf® with HydroBinder®)	Colorado State University Wave Simulator	4.0 ft <sup>3</sup> /s/ft
Internal Friction of Combined Components	ASTM D5321	21°, min.
ArmorFill™ Infill	ASTM D6913	ASTM C-33 Fine Aggregates w/ Pozzolanic Binder
Yarn Weight (Total Product Weight)	ASTM D5261	≥19 oz. / sq. yd. (≥ 24 oz. / sq. yd.)
Tensile Strength of Yarn	ASTM D2256	15 lbs. min.

**SUPPLY INFORMATION (Standard Roll Dimensions)**

	Thickness		Width		Length		Area (approx.)		Weight (avg.)	
	mil	mm	ft.	m	ft.	m	ft <sup>2</sup>	m <sup>2</sup>	lbs	kg
MicroSpike®	40	1.0	23	7	750	229	17,250	1603	~3900	~1769
Turf Component	N/A	N/A	15	4.6	300	91.44	4500	418	840	381

ClosureTurf®/and HydroTurf®/ products (US Patent No. 7,682,105, 8,585,322, 9,163,375, and 9,199,287; Canadian Patent No. 2,663,170; and other Patents Pending) and trademarks are the property of Watershed Geosynthetics LLC. All information, recommendations and suggestions appearing in this literature concerning the use of our products are based upon tests and data believed to be reliable; however, this information should not be used or relied upon for any specific application without independent professional examination and verification of its accuracy, suitability and applicability. Since the actual use by others is beyond our control, no guarantee or warranty of any kind, expressed or implied, is made by Watershed Geosynthetics LLC as to the effects of such use or the results to be obtained, nor does Watershed Geosynthetics LLC assume any liability in connection herewith. Any statement made herein may not be absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations. Nothing herein is to be construed as permission or as a recommendation to infringe any patent.