

# MicroSpike® Liner

HIGH DENSITY  
POLYETHYLENE

AGRU America's structured geomembranes are manufactured on state-of-the-art manufacturing equipment using the flat die calender manufacturing process, a method that produces the most consistent texturing across the roll along with a more consistent core thickness than other processes, such as the blown film extrusion process. AGRU uses only the highest-grade HDPE and LLDPE resins manufactured in North America.

### PRODUCT DATA

Property	Test Method	Frequency	Minimum Average Values				
Thickness (nominal ), mil (mm)	ASTM D5994	Per Roll	30 (0.75)	40 (1.0)	60 (1.5)	80 (2.0)	100 (2.5)
Thickness (min avg ), mil (mm)			29 (0.71)	38 (0.95)	57 (1.43)	76 (1.9)	95 (2.38)
Thickness (min 8 of 10), mil (mm)			27 (0.68)	36 (0.90)	54 (1.35)	72 (1.8)	90 (2.25)
Thickness (lowest individual), mil (mm)			26 (0.64)	34 (0.85)	51 (1.28)	68 (1.7)	85 (2.13)
Asperity Height mills, (mm)	ASTM D7466	2nd Roll	20 (0.51)	20 (0.51)	20 (0.51)	18 (0.46)	18 (0.46)
Density, g/cc, minimum	ASTM D792, Method B	200,000 lb	0.94	0.94	0.94	0.94	0.94
Tensile Properties (both directions)	ASTM D6693, Type IV	20,000 lb					
Strength @ Yield, lb/in width (N/mm)	2 in/minute		66 (11.6)	88 (15.4)	132 (23.1)	176 (30.8)	220 (38.5)
Elongation @ Yield, % (GL=1.3in)			13	13	13	13	13
Strength @ Break, lb/in width (N/mm)			66 (11.6)	88 (15.4)	132 (23.1)	176 (30.8)	220 (38.5)
Elongation @ Break, % (GL=2.0in)			350	350	350	350	350
Tear Resistance, lb.s. (N)	ASTM D1004	45,000 lb	23 (102)	30 (133)	45 (200)	60 (267)	72 (320)
Puncture Resistance, lbs. (N)	ASTM D4833	45,000 lb	60 (267)	90 (400)	120 (534)	150 (667)	180 (801)
Carbon Black Content, % (range)	ASTM D4218	20,000 lb	2-3	2-3	2-3	2-3	2-3
Carbon Black Dispersion (Category)	ASTM D5596	45,000 lb	Only near spherical agglomerates: 10 views in Cat. 1 or 2				
Stress Crack Resistance (SP-NCTL), hrs.	ASTM D5397 Appendix	200,000 lb	500	500	500	500	500
Oxidative Induction Time, minutes	ASTM D3895, 200°C, 1 atm O <sub>2</sub>	200,000 lb	≥140	≥140	≥140	≥140	≥140

AGRU America's geomembranes are certified to pass Low Temp. Brittleness via ASTM D746 (-80°C), Dimensional Stability via ASTM D1204 (±2% @ 100°C). Oven Aging and UV Resistance are tested per GRI GM 13. These product specifications meet or exceed GRI's GM13.

### SUPPLY INFORMATION (STANDARD ROLL DIMENSIONS)

THICKNESS		WIDTH		LENGTH		AREA (APPROX.)		
mil	mm	ft	m	ft	m	ft <sup>2</sup>	m <sup>2</sup>	
30	0.75	23	7	Double-Sided	980	299	22,540	2,094
				Single-Sided	1000	305	23,000	2,137
40	1.0	23	7	Double-Sided	750	229	17,250	1,603
				Single-Sided	790	241	18,170	1,688
60	1.5	23	7	Double-Sided	540	165	12,420	1,154
				Single-Sided	550	168	12,650	1,175
80	2.0	23	7	Double-Sided	410	125	9,430	876
				Single-Sided	420	128	9,660	897
100	2.5	23	7	Double-Sided	335	102	7,705	716
				Single-Sided	340	104	7,820	726

Note:

Average roll weight is 3,900 lbs (1,770 kg). All rolls are supplied with two slings. Rolls are wound on a 6" core. Special length available upon request. Roll length and width have a tolerance of ±1%. The weight and length values may change due to project specifications (i.e. average or absolute minimum thickness) or shipping requirements (i.e. international containerized shipments). 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, it is the users responsibility to determine the suitability for their own use of the products described herein. Since the actual use by others is beyond our control, no guarantee or warranty of any kind, expressed or implied, is made by AGRU America as to the effects of such use or the results to be obtained, nor does AGRU America 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.

