

# Black/White Smooth Liner®

## HIGH DENSITY POLYETHYLENE

AGRU America's smooth geomembranes are manufactured on state-of-the-art manufacturing equipment using the flat die calender manufacturing process, a method that produces 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 (minimum avg), mil (mm)	ASTM D5199	Per Roll	30 (0.75)	40 (1.0)	60 (1.5)	80 (2.0)	100 (2.5)
Thickness (minimum), mil (mm)			27 (0.68)	36 (0.9)	54 (1.35)	72 (1.8)	90 (2.25)
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 2 in/minute	20,000 lb	66 (11.6)	88 (15.4)	132 (23.1)	176 (30.8)	220 (38.5)
Strength @ Yield, lb/in width (N/mm)			12	12	12	12	12
Elongation @ Yield, % (GL=1.3in)			120 (21)	160 (28)	240 (42)	320 (56)	400 (70)
Strength @ Break, lb/in width (N/mm)			700	700	700	700	700
Elongation @ Break, % (GL=2.0in)			23 (102)	30 (133)	45 (200)	60 (267)	72 (320)
Tear Resistance, lbs (N)	ASTM D1004	45,000 lb	60 (267)	80 (356)	120 (534)	160 (712)	190 (845)
Puncture Resistance, lbs (N)	ASTM D4833	45,000 lb	2-3	2-3	2-3	2-3	2-3
Carbon Black Content, % (range) <sup>1</sup>	ASTM D4218	20,000 lb	Only near spherical agglomerates: 10 views in Cat. 1 or 2				
Carbon Black Dispersion (Category)	ASTM D5596	45,000 lb	500	500	500	500	500
Stress Crack Resistance (SP-NCTL), hrs.	ASTM D5397 Appendix	200,000 lb	≥140	≥140	≥140	≥140	≥140
Oxidative Induction Time, minutes	ASTM D3895, 200°C, 1 atm O <sub>2</sub>	200,000 lb	≥140	≥140	≥140	≥140	≥140

<sup>1</sup>Ash content may be ≥3 due to white layer.

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 GM 13.

### 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	1,175	358	27,025	2,511
40	1.0	23	7	900	274	20,700	1,923
60	1.5	23	7	600	183	13,800	1,282
80	2.0	23	7	455	139	10,465	972
100	2.5	23	7	365	111	8,395	780

Note:

Average roll weight is 4,200 lbs (1,905 kg). All rolls are supplied with two slings. Rolls are wound on 6" core. Special length available upon request. Roll length and width have a tolerance of ±1%. The weight values may change due to project specifications (i.e. absolute minimum thickness or special length) or shipping requirements (i.e. international containerized shipments).

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