

PRS Neoloy Tough-Cells

Product Specification for Railway Applications

Mechanical Properties	Value	Units	Test Method
Tensile Strength at Yield – perforated (Wide-width)	≥ 19	kN/m	ISO 10319 (1)
Pure Elastic Modulus - Flexural storage modulus (E' _f): +30° C +45° C +60° C +75° C	>775 >675 >550 >300	MPa	ISO 6721-1 ASTM E2254 (DMA)
Accelerated Creep at Tension Stresses and Long-Term geotechnical cell strength (SIM method):	≥6.9	kN/m	ASTM D-6992 (SIM) (2)
Oxidation Durability HPOIT	≥ 400	Minutes	ASTM D5885 (HPOIT @ 150°C) (3),(6)
Resistance to thermal degradation (min %)	80% of the time value of HPOIT before degradation	%	ASTM D57121 (4),(6)
Resistance to UV radiation (min %)	50% of value before degradation	%	ISO 4892-3 (5),(6)
Carbon Black Content in Black Colored Cells (min %)	2-3	%	ASTM D1603 (6)
Maximum Carbon Black Particle Size in Black Colored Cells	25	µm	ASTM D3849
Linear Coefficient of Thermal Expansion (CTE)	≤ 80	ppm/1°C	ISO 11359-2 (TMA) ASTM E831

- (1) Standard ISO 10319 test modified for test sample size; strip is cut adjacent to 2 seams; test direction is perpendicular to seams. Sample measured at strain rate 100 mm (4 in) /min at 23°C. Perforated tensile strength is on area with the densest perforations.
- (2) Sample size is perforated wide-width strip. Load of 6.9kN/m including all steps as per ASTM D6992, with max. 10% cumulative permanent deformation
- (3) A value of 1600 minutes and other higher customized values can be supplied upon demand.
- (4) Place the test strip in an oven at a temperature of 85°C for a period of 90 days, as per ASTM D57121. Test the durability to oxidation as described in ASTM D5885, and calculate the percentage of change in durability to oxidation.
- (5) Prepare 3 test strips, such that the length of the strips is perpendicular to the seam welds of the geocell. Subject the test strips to UV lamps type 1A (UVA-340) for a period of 1600 hours, at intervals of 20 hours of illumination at 75°C and for 4 hours strain at a temperature of 60°C.
- (6) As Neoloy Tough-Cells are co-extruded multi-layered cell strips, testing is conducted on outer layers only.

Physical Properties	Description	
Material	Neoloy- composite alloy of polyamide fibers dispersed in polyethylene matrix	
Coefficient of Soil-Cell Friction Efficiency (±5%)	0.95	ASTM D5321
Distance between Weld Seams (±2.5%)	330 mm	356 mm
Cell Wall Heights ⁽¹⁾ (±2.5%)	100, 120, 150 mm	100, 120, 150 mm
Cell Dimension (Optimal opening) (±3%)	245 x 210 mm	260 x 224 mm
No. of Cells/m ² (±3%)	40	35
Standard Section Size ⁽²⁾ (Expanded)	2.5 x 8.0 m	2.7 x 7.4 m
Standard Section Area (Expanded)	20 m ²	20 m ²

- (1) Different heights available upon special order
(2) Customized size sections available upon request

NOTES:
Perforations – from ~7-13% of cell wall area of variable dimensions and shapes
Color – terra cotta, other colors available upon request