

Product Information Bulletin

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GeoSpec® Lightweight Fill Material Product Data per ASTM D6817

GeoSpec® lightweight fill material is expanded polystyrene (EPS) geofoam used in ground fill applications where a lightweight fill material is required to reduce stresses on underlying or adjoining soils/structures. EPS geofoam has been used in projects involving roads, bridge approach fills, embankments, levees, berms, foundations, landscaping, etc., worldwide for over 50 years.

GeoSpec fill material can be designed to support high compressive loads, but has a density less than 1% of traditional earth materials. It can be designed to meet a wide range of geotechnical engineering specifications with a density range of 11 kg/m³ (0.7 pcf) to 46 kg/m³ (2.85 pcf) providing a range of compressive resistance values. The table below provides **GeoSpec** fill material properties for type designations as per ASTM D6817, **Standard Specification for Rigid Cellular Polystyrene Geofoam**.

Material Property ¹	Units	D6817 GeoSpec Type Designations ²						
		EPS12	EPS15	EPS19	EPS22	EPS29	EPS39	EPS46
Product Density <i>Minimum</i> ASTM C303	kg/m ³ (pcf)	11.2 (0.70)	14.4 (0.90)	18.4 (1.15)	21.6 (1.35)	28.8 (1.80)	38.4 (2.40)	45.7 (2.85)
Compressive Resistance³ <i>Minimum @ 1% Strain</i> ASTM D1621	kPa (psi)	15 (2.2)	25 (3.6)	40 (5.8)	50 (7.3)	75 (10.9)	103 (15.0)	128 (18.6)
Flexural Strength <i>Minimum</i> ASTM C203	kPa (psi)	69 (10)	172 (25)	207 (30)	240 (35)	345 (50)	414 (60)	517 (75)
Limiting Oxygen Index <i>Minimum</i> ASTM D2863	%	24	24	24	24	24	24	24
Additional Compressive Resistance Properties⁴								
Compressive Resistance <i>Minimum @ 5% Strain</i> ASTM D1621	kPa (psi)	35 (5.1)	55 (8.0)	90 (13.1)	115 (16.7)	170 (25.0)	241 (35.0)	300 (43.5)
Compressive Resistance <i>Minimum @ 10% Strain</i> ASTM D1621	kPa (psi)	40 (5.8)	70 (10.2)	110 (16.0)	135 (19.6)	200 (29.0)	276 (40.0)	345 (50.0)

1. GeoSpec lightweight fill material properties are third party certified under a certification program administered by Intertek based upon ASTM D7557, **Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens**.

2. The material properties for GeoSpec lightweight fill material are third party certified by Intertek.

3. Compressive resistance at 1% strain is within the elastic limit for the GeoSpec types in the above table and is accepted as the design compressive resistance to limit long-term deformation under structural load.

4. Compressive resistance at 5% and 10% strain in the above table are provided for applications where the intended end-use requires long-term deformation under structural load – i.e., a compressible product.