

GaiaSoil™ Specifications

GaiaSoil™ is an ultra-lightweight engineered growing medium primarily composed of post-consumer source Styrofoam (expanded and/or extruded polystyrene), organics, and other additives. GaiaSoil is intended to be used for rooftops (green roofs) and other spaces where bearing capacity is a critical concern, as well as applications where floatation capability of the soil medium is a desirable characteristic.

Category	Value	Additional Information
Weight & Porosity		
Primary Material Composition	Recycled EPS/XPS	Post-consumer expanded and/or extruded polystyrene. Not densified.
Weight (dry)	10 - 12 lbs/ft ³	Dry refers to 0% water content in voids
Weight (saturated)	28 - 32 lbs/ft ³	Saturated refers to 100% water content in voids
Waterholding Capacity (as % of dry weight)	150 - 200%	
Total Void Space/Porosity	44 - 50%	USGS Laboratory-evaluated over 3 samples
Waterholding Capacity (as % of total volume)	30 - 33%	Water is held in large capillaries mainly
Soil Air (as % of total volume)	14 - 17%	Air is mainly held in small capillaries that are inaccessible to water
Composition		
Shredded Expanded and/or Extruded Polystyrene (also known as: Styrofoam; % by Vol.)	70 - 85%	Recycled, post-consumer product
Organic Content (% by volume)	11 - 28%	Can be adjusted based on client needs
Clay (% by volume)	2 - 4%	Can be adjusted based on required Cation Exchange Capacity (CEC)
Other Ingredients	<2%	Necessary to facilitate product performance
Typical GaiaSoil Composition	Actual GaiaSoil composition can be adjusted based on project needs. Ranges given are estimates to show general product composition	
Insulation Properties		
R-Value (0% saturation @ 25° F)	2.7/in.	Evaluated by Dynalene Laboratory Services
R-Value (0% saturation @ 90° F)	1.9/in.	Evaluated by Dynalene Laboratory Services
R-Value (50% saturation @ 25° F)	2.6/in.	Evaluated by Dynalene Laboratory Services
R-Value (50% saturation @ 90° F)	1.5/in.	Evaluated by Dynalene Laboratory Services
R-Value (100% saturation @ 25° F)	0.6/in.	Evaluated by Dynalene Laboratory Services
R-Value (100% saturation @ 90° F)	0.4/in.	Evaluated by Dynalene Laboratory Services
6" Cross Section Total Insulation under field conditions	~10.5R	Est. at 15% Saturation at 65° F
Design Weight		
Typical Design Load for GaiaSoil Roof (4" soil depth)	16 - 18 lbs./ft ²	Fully vegetated and 100% saturation
Typical Design Load for GaiaSoil Roof (6" soil depth)	21 - 23 lbs./ft ²	Fully vegetated and 100% saturation
Typical Design Load for GaiaSoil Roof (8" soil depth)	26 - 28 lbs./ft ²	Fully vegetated and 100% saturation
Typical Design Load for GaiaSoil Roof (12" soil depth)	36 - 39 lbs./ft ²	Fully vegetated and 100% saturation

