



Geocomposite Drain Mat

The geocomposite drainage mat is a three-dimensional drainage board, composed of upper and lower nonwoven fabrics and a central drainage mat. The drainage mat is made of polypropylene and is specially extruded to form full-section continuous drainage channel.

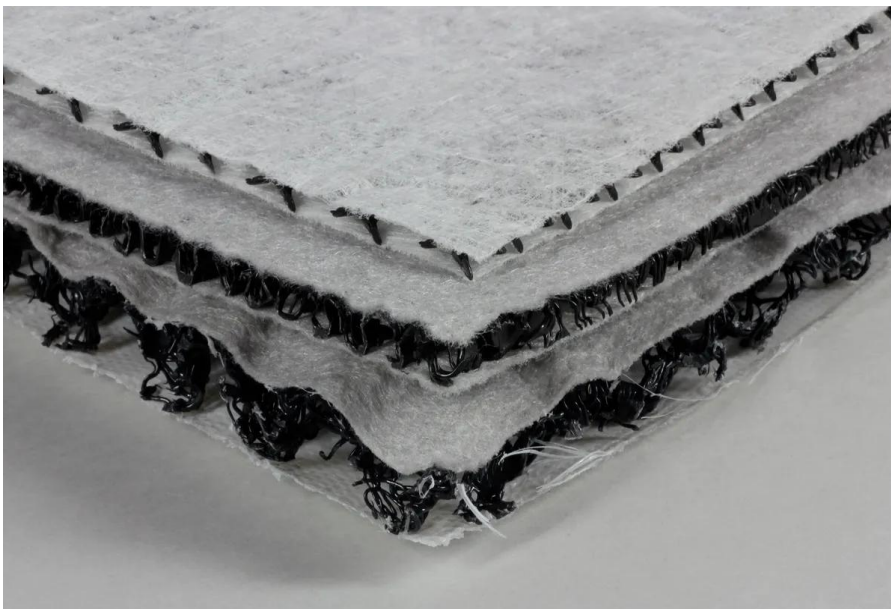
So that the seepage can pass quickly, so as to obtain a good drainage effect. The upper and lower composite two-layer nonwoven fabrics play a filtering role, no particles will enter the drainage channel, and the drainage channel will not be blocked, thereby ensuring an ideal soil structure without structural deformation or collapse.

The composite drainage mat uses geotextile as the filter material, a structure of fixed waveform channels formed by continuous extrusion of polymer filaments as the core material, and a composite geotextile membrane as the waterproof layer. The filter material, core material, and waterproof layer are thermally bonded to form a composite drainage material with a certain width.

Drainage geosynthetic materials have replaced traditional gravel or aggregate drainage systems in buildings. Drainage geosynthetic materials can also provide other functions such as filtration, separation, and protection.



[Geocomposite Drain Mat]



[Geocomposite Drain Mat]

Good economy: It is estimated that the use of geocomposite drainage mats to replace traditional drainage pad materials can save 15% to 30% of the cost, which does not include the benefits of the convenience of construction.

Rapid construction: The use of geocomposite drainage mats is simple and quick to construct, which greatly simplifies the complicated grading process of traditional gravel drainage pads, which can effectively reduce the construction period and save costs.

Geocomposite Drain Mat Features:

- Disperse soil pressure.
- As a drainage channel, transport water to the collection pipe.
- When backfilling the drainage ditch, protect the anti-seepage layer from damage.
- Remove excessive moisture from the soil.
- Protect drainage channels from soil particle blockage.
- Continuous flow in all directions, even under loads.
- Conforms to irregular surfaces and corners with complete and effective coverage.
- Long rolls reduce installation costs by eliminating interlocking and excessive seams .
- Strong drainage and high tensile strength.
- Reduce the probability of geotextile embedding into the mesh core and maintain long-term stable drainage.

Composite Products: GEOCOMPOSITE DRAIN MAT

APPLICATION

Widely used in landfill sites, roads, tunnels, railways, highways, tunnels, municipal engineering, reservoirs, slope protection and drainage engineering fields.

It is also used for the application of road median and seepage ditch drainage on both sides of the road, tunnel drainage, and slope drainage.

SPECIFICATIONS OF GEOCOMPOSITE DRAIN MAT

TECHNICAL STANDARD FOR GEOCOMPOSITE DRAIN MAT Q/CR549.6-2017

Item		Index					
Thickness mm		3.5	4.5	5.5	6.5	7.5	8.5
Horizontal flow rate (normal load 100kPa) L/(m·min)		≥12	≥26	≥32	≥34	≥42	≥50
Core	Mass per unit g/m ²	≥340	≥390	≥450	≥580	≥680	≥900
	Compressive yield strength kPa	≥300					
	Carbon black content	≥2.0%					

TECHNICAL STANDARD FOR GEOCOMPOSITE DRAIN MAT ISO

Hydraulic Gradient	Test	Load (kPa)	Flow Capacity
i = 1	EN ISO 12958	20	2.10 · 10 ⁻³ m ² /s
		100	0.39 · 10 ⁻³ m ² /s
		200	
i = 0.1	EN ISO 12958	20	0.62 · 10 ⁻³ m ² /s
		50	0.25 · 10 ⁻³ m ² /s
		100	0.08 · 10 ⁻³ m ² /s
i = 0.03	EN ISO 12958	20	0.29 · 10 ⁻³ m ² /s
		50	0.10 · 10 ⁻³ m ² /s
		100	0.03 · 10 ⁻³ m ² /s
		200	
Polymer Type			PP
Mass per Unit Area	EN ISO 9864	g/m ²	540
Thickness under 2 kPa	EN ISO 9863-1	mm	10
Tensile Strength	EN ISO 10319	kN/m	10
Elongation at break	EN ISO 10319	%	35
Dynamic Perforation (cone drop)	EN ISO 13433	mm	20
Geotextile Properties			
Dynamic Perforation (cone drop)	EN ISO 13433	mm	45
Waterflow normal to plane (Vh ₅₀)	EN ISO 11058	mm/s	100
Characteristic Opening Size (O ₉₀)	EN ISO 12956	μm	180

Compared to traditional drainage mats, the main feature of the new type of drainage mat is that the drainage channels are continuous straight lines and do not interfere with each other, achieving good drainage effects.

PROJECTS CASE OF GEOCOMPOSITE DRAIN MAT



[Hiayway in Uzbekistan]



[Railway in United Arab Emirates]

The geocomposite drainage mat is composed of two layers of non-woven fabric on top and bottom, which plays a filtering role, preventing particles from entering the drainage channel and blocking the channel in practical engineering applications, ensuring that the soil structure is complete and does not cause structural deformation or collapse. In projects with special anti-seepage requirements, a composite layer of geomembrane can be chosen to play a role in anti-seepage. Therefore, this product actually combines three functions of drainage, filtration, and anti-seepage, and is a typical multifunctional material. The new type of geotechnical composite drainage mat can quickly guide and drain excess water in water related engineering, reduce pore water pressure, and improve the overall stability of the project.

The composite drainage mat is a three-dimensional polypropylene mat that is specially formed into a full section drainage channel, and a two-layer nonwoven geotextile that has undergone heat treatment, forming a three-dimensional drainage structure for filtration, drainage, and protection through thermal bonding. The drainage core material has a unit area of 420g/m² (tolerance $\pm 10\%$), the filter layer has a unit area of 105g/m² (tolerance $\pm 15\%$), and the longitudinal tensile strength is 14kn/m, 50kpa. When the hydraulic gradient $i=1$, the plane water flow rate is $1.5 \times 10^{-3} \text{ m}^2/\text{s}$, 100kpa. When the hydraulic gradient $i=1$, the plane water flow rate is $1.3 \times 10^{-3} \text{ m}^2/\text{s}$, and the tensile strength is around 14kn. Composite waveform drainage mats are generally used in projects such as retaining walls, airports, and sports fields.

The geocomposite drainage mat is lightweight and does not require machinery, and can be constructed manually; Without the need for advanced technicians or special construction tools, construction can usually be completed with cutting tools, nails, and hammers.

The use of overlapping construction is simple and feasible, ensuring the continuity and convenience of construction, and avoiding construction quality issues.

- The geomat between two layers of geotextiles not only provides drainage channels, but also serves as a reinforcing material to improve the physical and mechanical properties of the soil.
- Geotextiles can play a good role in filtration, preventing soil erosion while draining, and achieving good soil retention.
- One layer of geotextile can be replaced with geotextile membrane to achieve anti-seepage effect.

