

TenCate™ Engineers Determine The Separation Capability of Geosynthetics

Use Of The Separation Factor Assists In Selection Of Geosynthetics For Roadway Design

Geotechnical engineering requires separation, which is a process that can happen two ways. One way is through the use of an additional layer of soil, which is quite expensive. The second more cost-effective and efficient way is through the use of a separation geosynthetic.

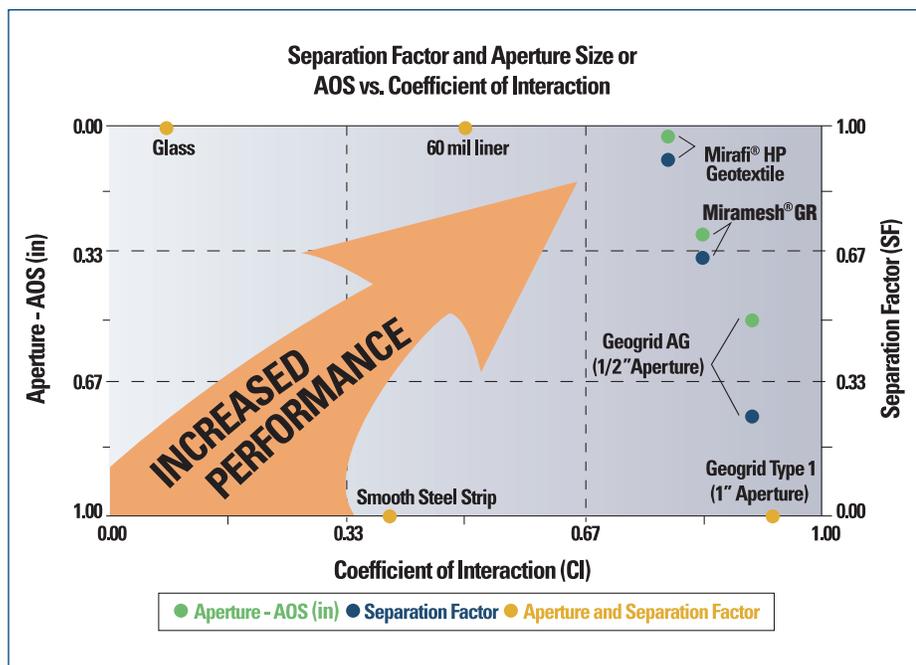
In order for a geosynthetic to be used in separation applications, it must meet specific industry requirements. These well-documented requirements include the following:

Retention – The geosynthetic opening must be small enough to prevent migration of sub-grade fine particles into the base course under dynamic vehicle loads.

Permeability – The size and number of openings in a geosynthetic must be large enough to facilitate the flow of liquid in either a downward or upward direction.

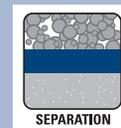
Survivability – A geosynthetic must have the required strength and stability to withstand installation and perform in separation applications. (GRI)

For over 30 years, engineers have used tensile strength, puncture, burst, etc. to specify separation. The Separation Factor now provides an accurate way for TenCate™ engineers to quantify the separation capability of construction materials. The following chart displays the Separation Factor of different construction materials.



$$SF = MR / MT$$

How the Separation Factor Works



Separation is defined as prevention of sub-grade soil from intrusion into the aggregate base (or sub-base), as well as prevention of migration of the aggregate base into the sub-grade.

Engineers at TenCate™ now have an accurate and proven way to measure the separation performance capability of geotextiles. The new formula, called the Separation Factor, quantifies a product's ability to separate by defining the ratio of the soil mass retained (MR) on top of a geosynthetic sieve to the total soil mass (MT). This formula is defined as $SF = MR / MT$.

Engineers analyze this calculation relative to other applicable indexes, primarily the coefficient of interaction (confinement), AOS (filtration) and permittivity (water flow).

Mirafi® HP-Series

TenCate™ Geosynthetics develops and produces Mirafi® HP-Series, an innovative series of High Performance woven polypropylene geotextiles that function for soil **separation**, stabilization, and soil **reinforcement** applications. These geotextiles increase performance, reduce costs and deliver measurable results. By working with our customers to provide advanced solutions, our engineered soil solutions help safeguard against unseen dangers, like water, and protect valuable assets from harm.

The Difference Mirafi® HP-Series High Performance Geotextiles Make:

- **Reinforcement Strength** – Delivers higher tensile strength and tensile modulus capabilities than comparable stabilization products.
- **Separation and Filtration** – Provides excellent separation with controlled filtration and drainage. With uniform openings, these geotextiles can handle the same filtration and flow characteristics as that of a fine-to-coarse sand layer.
- **Durability** – Highly damage-resistant for moderate-to-severe stress installations.
- **Soil Interaction** – Superior soil confinement for greater load distribution.
- **Roll Sizes** – Available in multiple roll sizes, offering customization for project requirements.
- **Seams** – Offers panels that can be sewn together in the factory or in the field in order to provide cross-roll direction strength for easy installation of large panels.
- **Resistance** – Inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

400
lbs/in

MIRAFI®
HP570

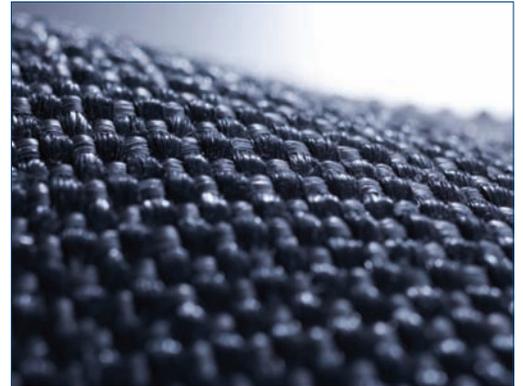
270
lbs/in

MIRAFI®
HP370

190
lbs/in

MIRAFI®
HP270

When high performance, flexibility and versatility are necessary, Mirafi® HP geotextiles make the difference for varying application needs including: base course reinforcement and subgrade restraint for road and railway construction; embankment stabilization on soft foundations; reinforcement for mechanically stabilized earth (MSE) structures; liner support, voids bridging, reinforcement over soft hazardous pond closures and other environmental market applications.



Mirafi® HP-Series High-Performance Geotextile



Mirafi® HP370 allows workers to walk without sinking.



Mirafi® HP570 provides subgrade stabilization and base reinforcement.



Mirafi® HP570 reinforces soft soils on access roads.

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materials that make a difference