

Secutex®

 Naue

Geotextile separation, filtration and protection nonwoven



naue.com

Building on sustainable ground.

Naue Secutex® is a single-layered, mechanically bonded nonwoven. In addition to the product types with mechanical bonding, some Naue Secutex® types are thermally calendered.

Secutex® is used to separate soil layers with different grain sizes while at the same time allowing water to flow through without accumulating („separation and filtration“ function). Furthermore, the mechanically bonded nonwovens have excellent bedding properties and can be used as protection layers for geomembranes in tunnelling and landfill construction.

Typical fields of application for Secutex®

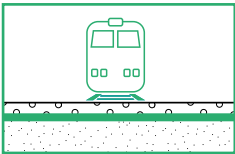


Figure 1:
Railway construction

Railway construction

Application advantages of Secutex®:

- Excellent filtration properties
- Durable hydraulic properties
- High elongation and, therefore, adjustable to soil deformations
- High resistance to chemical and microbial attacks
- Robust against installation damages

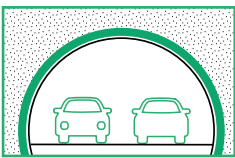


Figure 2:
Tunnelling

Tunnelling and landfill engineering

Application advantages of Secutex®:

- High contact friction angle
- Resistant to punctual loads
- High resistance to chemical and microbial attacks
- Robust against installation damages

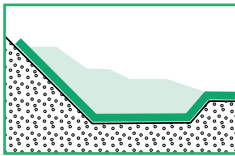


Figure 3:
Landfill engineering

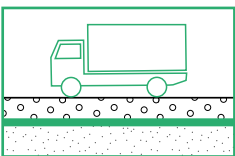


Figure 4:
Road construction

Road construction, temporary roads and traffic areas

Application advantages of Secutex®:

- Excellent filtration properties
- Durable hydraulic properties
- High elongation and, therefore, adjustable to soil deformations
- Robust against installation damages

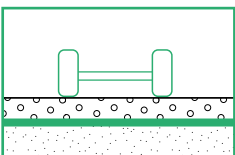


Figure 5:
Temporary roads

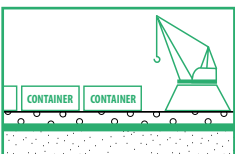


Figure 6:
Traffic areas

Valid for all applications mentioned:

Application advantages of Secutex®:

- Simple and cost-effective installation
- High quality standard

Advantages of Secutex®

Mechanically bonded nonwovens are robust geotextiles that can withstand heavy installation and construction loads. Their high elongation allows for high resistance to puncture and pressure loads without affecting other properties (see Fig. 7 and Fig. 8).

When applying fill layers on soils with low load-bearing capacity, the elongation of the nonwoven is of decisive importance. It can prevent damage to the separation layer already during installation. Highly flexible Secutex® nonwovens should also be used to secure the separation function in the case of deep ruts.



Figure 7: Secutex® as a separation layer - installation under heavy installation loads



Figure 8: Adaptation of Secutex® to unevenness caused by fill material

Elongation of the nonwoven

Due to the manufacturing process, the fibres of the Secutex® nonwoven can reorient themselves when loads are applied. This allows the nonwoven to adapt well to unevenness caused by the fill material and the flexible subsoil. Damage to the nonwoven structure is prevented so that the separation and filtration function is maintained (Fig. 8).

Soil retention capacity

As with mineral filter layers, the soil retention capacity of Naue Secutex® nonwovens is of decisive importance (Fig. 9). Geotextile filters must be dimensioned in such a way that the mechanical filtration efficiency (soil retention capacity) is fulfilled at the same time as the hydraulic filtration efficiency (low-pressure drop water drainage). Depending on the type of bonding (only mechanical, mechanical and thermal, only thermal), nonwovens with different opening widths can be produced (Fig. 10). Secutex® nonwovens, correctly dimensioned, are effective as long-term filters.

Protection function

In landfill construction and tunnelling the geomembranes must be protected against mechanical damage from the surrounding layers (drainage gravel in landfill construction or shotcrete of the tunnel lining in tunnelling, Fig. 11). Mechanically bonded Naue Secutex® nonwovens have an excellent protective function concerning bedding capacity due to their high mass and thickness.

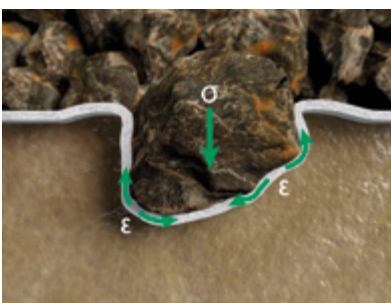


Figure 9: In-situ-loading and load/elongation effects in the Secutex® nonwoven
 σ = Force effect
 ϵ = Strain

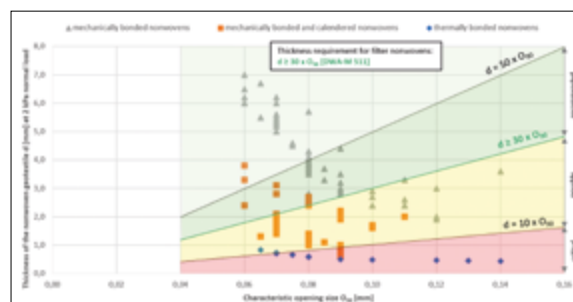


Figure 10: Recommended opening size and thickness correlation: (range: green - recommended; yellow - application-related possible; red - critical) DWA-M 511, 2017



Figure 11: Secutex® as protection against, e.g., drainage gravel

