

The use of geosynthetics in construction applications has long been recognised as a cost-saving and performance-enhancing solution versus classical construction techniques.

Damage resistance during installation

The primary challenge facing any geotextile is to survive the harsh installation conditions, and to remain undamaged. 95% of all damage to a geotextile typically occurs during installation. Only those that survive the severe initial installation stresses will live on to perform the functions for which they have been designed.



Damage testing

Functions of Typar® SF geotextiles

- + Separation
- + Stabilisation
- + Filtration
- + Drainage
- + Protection

Functions of Typar® SF

functions

+ Separation

By using **Typar® SF**, you can benefit from:

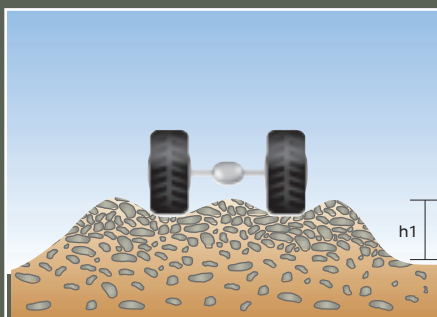
- Aggregate savings
- Increased compaction
 - ➔ Enhanced load-bearing
 - ➔ Improved rutting resistance
- Improved frost resistance in the aggregate base.

+ Stabilisation

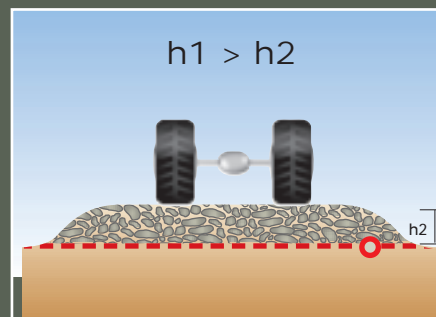
Typar® SF improves the overall stability of your construction by:

- increasing the bearing capacity of the soil
- ameliorating rutting resistance
- reducing differential settlements

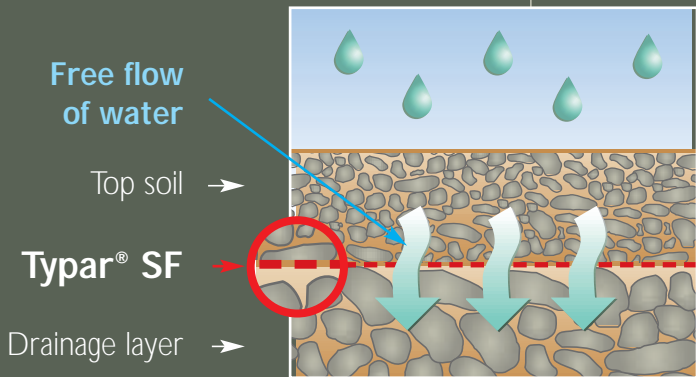
Without **Typar® SF**



With **Typar® SF**



+ Filtration

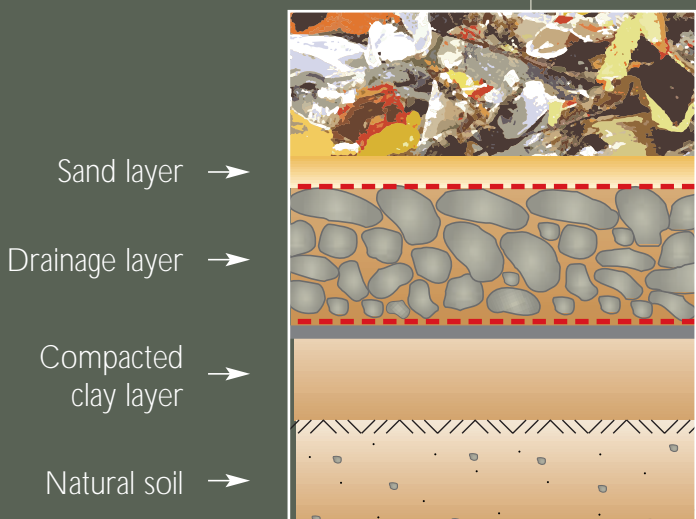


Typar® SF ensures:

- Fines do not migrate into the drainage system or aggregate layers
- Permeability is not affected, even under soil pressure
- Erosion is prevented
- Long-term filtration.

+ Protection

Typar® SF ensures the protection of geomembranes and geosynthetic systems.

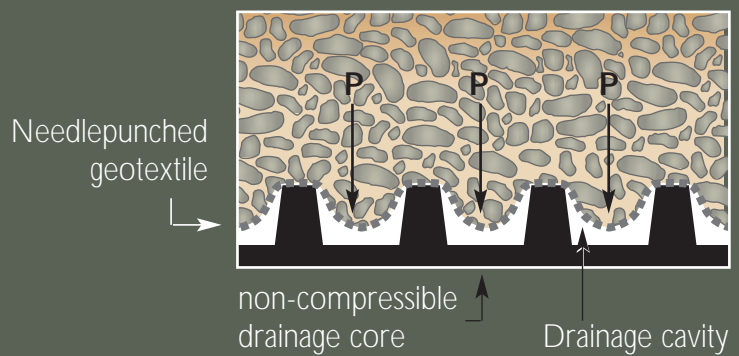


+ Drainage

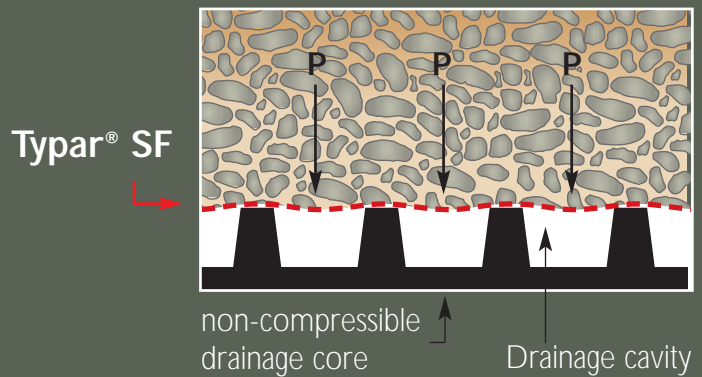
- Evacuation of water or leachate

A geotextile alone cannot provide adequate drainage capacity. For efficient drainage, a combined system comprising a non-compressible core (or a drainage layer) and a stiff, robust geotextile filter, like Typar® SF, is required.

With Needleponched geotextile



With Typar® SF



← Waste

← Typar® SF
Separation/filtration

← Typar® SF
Protection

← Geosynthetic barrier
(Geomembrane)

Typar® SF: the ultimate choice

DuPont has engineered Typar® SF especially to offer the ultimate combination of properties ensuring superior geotextile performance:

- ▶ High energy absorption
- ▶ High initial modulus
- ▶ High elongation (typically > 50%)
- ▶ Long-term filtration
- ▶ Outstanding uniformity

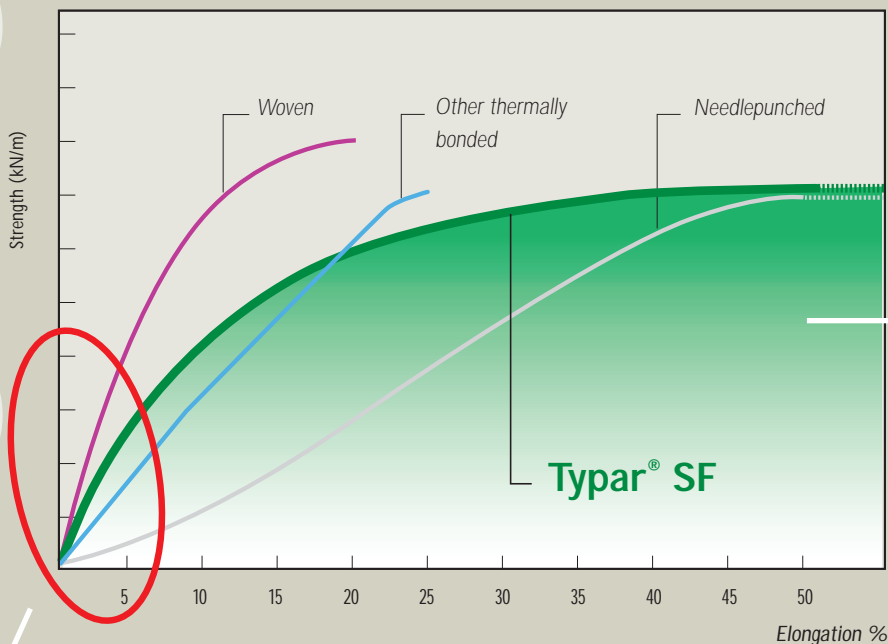
This combination
is only provided by

Typar® SF

Energy

Ask for more... The secret is in the curve.

All geotextile materials exhibit a characteristic stress-strain curve that describe their mechanical properties and behaviour (EN ISO 10319)



The optimal balance of properties results from the unique shape of the materials' characteristic stress-strain curve which explains the superb all-round performance of Typar® SF in all functions expected of a geotextile.

▶ Energy

A combination of initial modulus and elongation → high resistance to damage during installation

▶ High initial modulus

Low deformation at typical service life stresses → low rutting

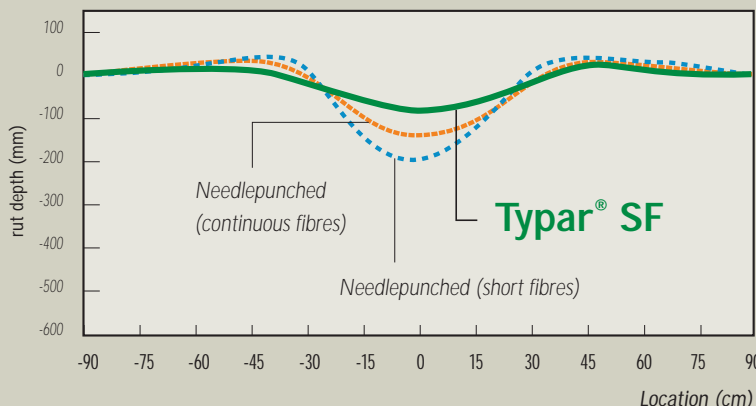
● **Stabilisation allows rutting to be reduced**

Rutting occurs as a result of the regular passage of transport over the structure. This stress causes in-plane tensile stresses and activates related membrane and restraint mechanisms. A high degree of stiffness (the initial modulus of the material) at the typical stress levels that are experienced during the service life of the geotextile is vital in making any significant reduction in rutting and deformation.

● **Concept of energy absorption**

Energy absorption is represented by the area below the curve. The larger this area, the more successfully the product resists damage during installation. These are findings from independent studies. For this reason, the concept of energy absorption is one of the most important subjects under discussion for European classifications.

The results of an independent laboratory test simulating traffic indicate a clear relationship between initial modulus and deformation (rutting)



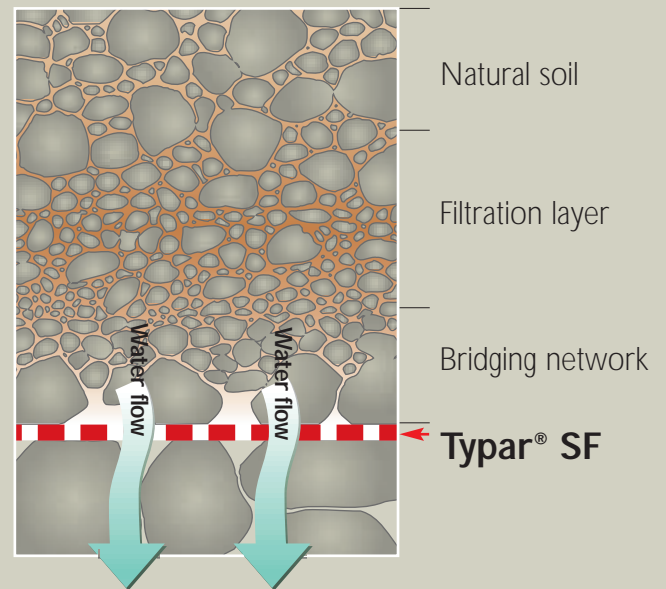
Typar® SF offers an exceptionally high energy absorption potential combined with a high initial modulus

MORE

Ask for more...

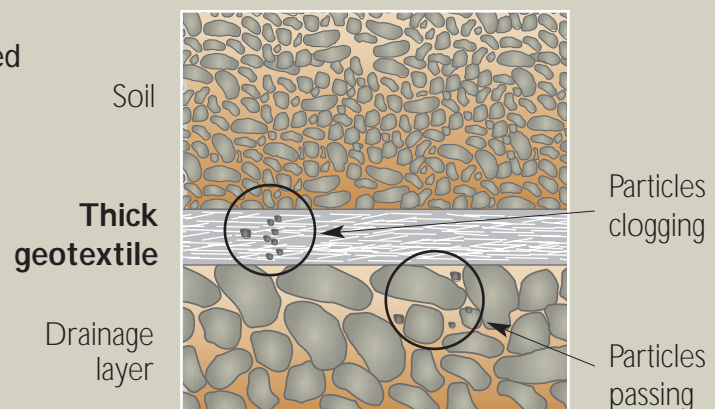
► Filtration

Typar® SF ensures an effective filtration system by creating a natural soil filter. As water passes from the soil through **Typar® SF** and into the drain, it initially washes out fine particles. This causes a bridging network of larger particles to be built up adjacent to the **Typar® SF** forming a natural soil filter. This combination of geotextile and natural soil filter immediately stops piping and gives stable filter conditions over time.

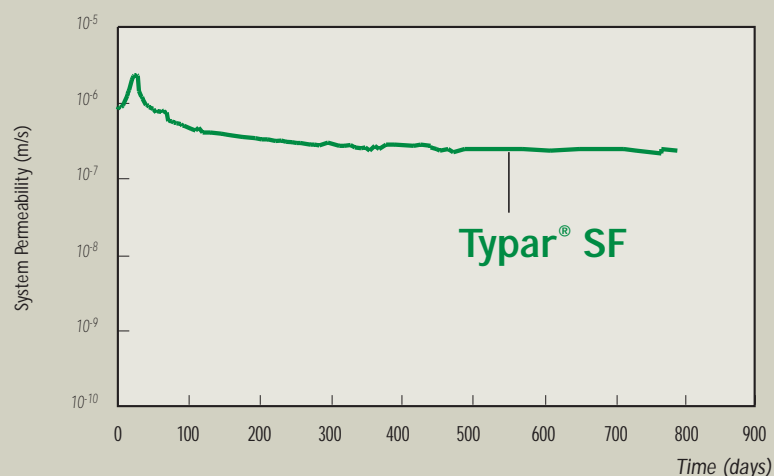


...long-lasting filtration: no clogging

Typar® is not clogged: **Typar®** is pre-compressed and thus soil fines and particles are not retained within its thin structure.



Permeability of the System Typar®-Loess (critical soil), $i = 3$



Demonstrated long-term filtration performance of Typar® SF.
For further details, see the Typar® SF Technical handbook.

MORE

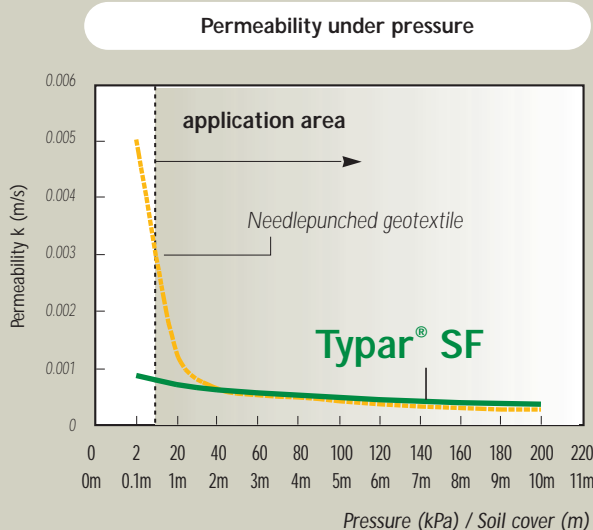
Ask for more...

▶ Permeability

The permeability of a soil-geotextile system is dictated by the permeability of the soil itself. **Typar® SF** is generally as permeable as the soil, therefore it suits perfectly for filtration.

... even under loads

Unlike some other geotextiles **Typar® SF** retains its permeability under in-use loads.



... and pore size remains unchanged under tensile stress

Being a pre-compressed filter with thermally-bonded fibres, the pore size of **Typar® SF** is neither reduced under high loads nor enlarged under stress, ensuring a consistent pore size and thus filtration efficiency throughout its service life.

Low blocking & low blinding

The large number of pores and random pore size distribution make the **Typar® SF** structure similar to a natural soil structure. This ensures that **Typar® SF** cannot be completely blocked or blinded.

▶ Outstanding performance

in all directions, in any location!

Typar® SF is a nonwoven geotextile which provides superb performance in all directions, mirroring in-use-loads.

DuPont quality manufacturing and **Typar® SF** process control ensure excellent product uniformity, thereby guaranteeing consistent performance over the entire geotextile roll.

▶ Practical advantages

→ easy to handle

A roll of **Typar® SF** can easily be carried by two people. Cutting the material is very simple.

→ easy to install

It is very easy to unroll **Typar® SF**. As it is pre-compressed, it does not soak up water, does not become heavy and can easily be installed in muddy conditions.

→ even in winter conditions

Because it doesn't soak up water, it cannot freeze, and is therefore easy to install in winter conditions.

→ simplified logistics

As **Typar® SF** is pre-compressed, it takes up little space, hence low storage space is required and transport is facilitated.

→ large choice of dimensions

For further details on this subject, please refer to the **Typar® SF** datasheet.

Railway track renewal between Moscow and St Petersburg (Russia)



Mora Airport (Sweden)

- ▶ Temporary roads, access roads, forest roads
- ▶ Permanent roads, airport runways and taxiways, motorways
- ▶ Car parks, storage yards
- ▶ Railways, new tracks and tracks renewal
- ▶ Trench drains
- ▶ Vertical drains
- ▶ Agricultural and pipe drains

Applications

For an indication of which style to use, please refer to the document "Recommended Typar® SF styles"

Highway construction (France)

