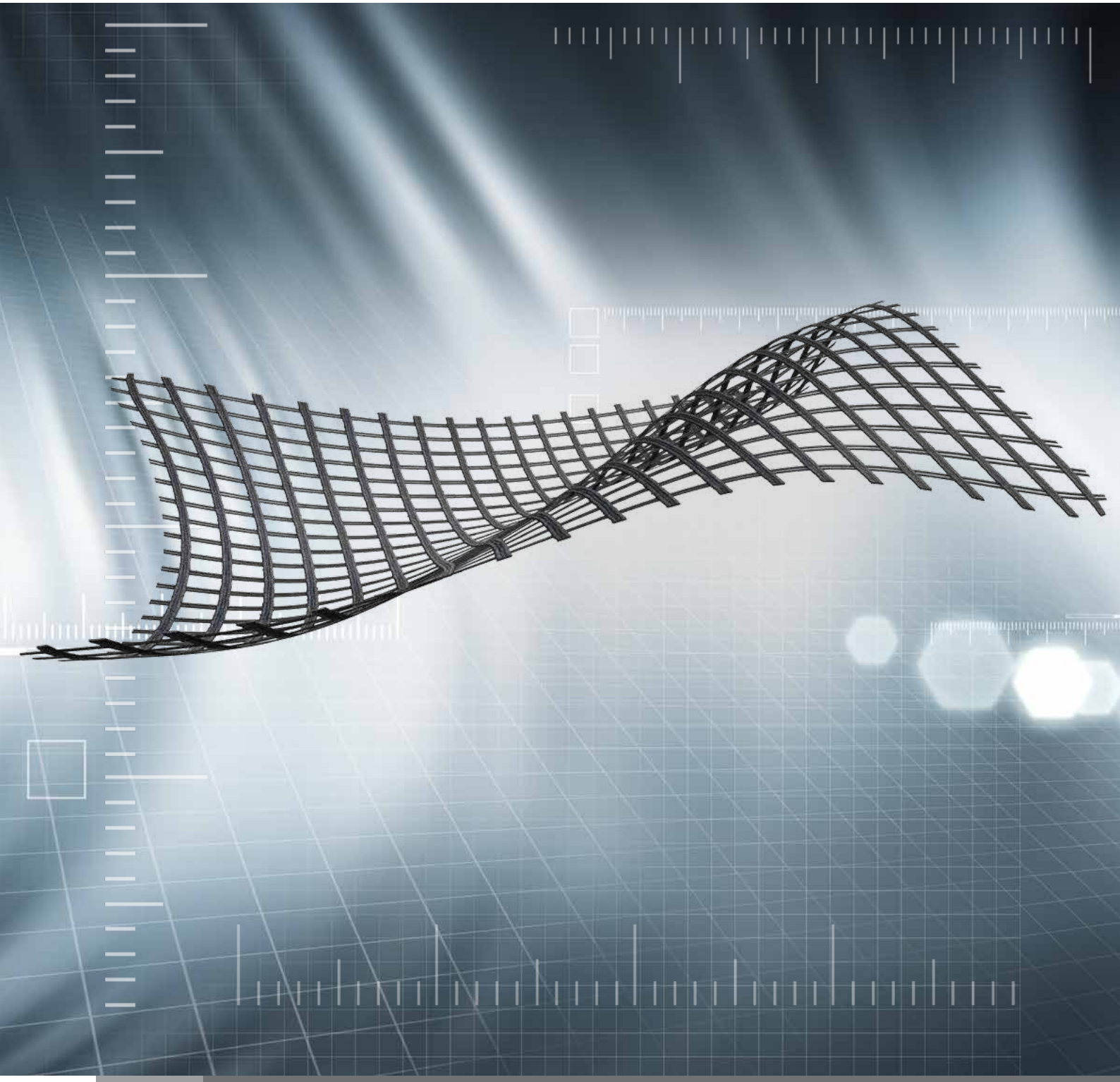


Discover the World of Geosynthetics

Product Overview

HUESKER
Ideen. Ingenieure. Innovationen.

Discover our

Solution Competence

HUESKER solutions begin with providing the customer with initial advice and end with supporting the realisation of the project on site. What we provide are safe, customised, ecologically sound and economically viable project solutions.

Services provided by our engineers

- **Geotechnical design**
  Our engineers assist design practices by performing verifiable design calculations in accordance with international codes of practice.
- **Technical consulting**
  We will recommend the appropriate product types for your specific requirements.
- **Project-specific placement plans**
  We can provide typical design details and installation instructions.

Product services

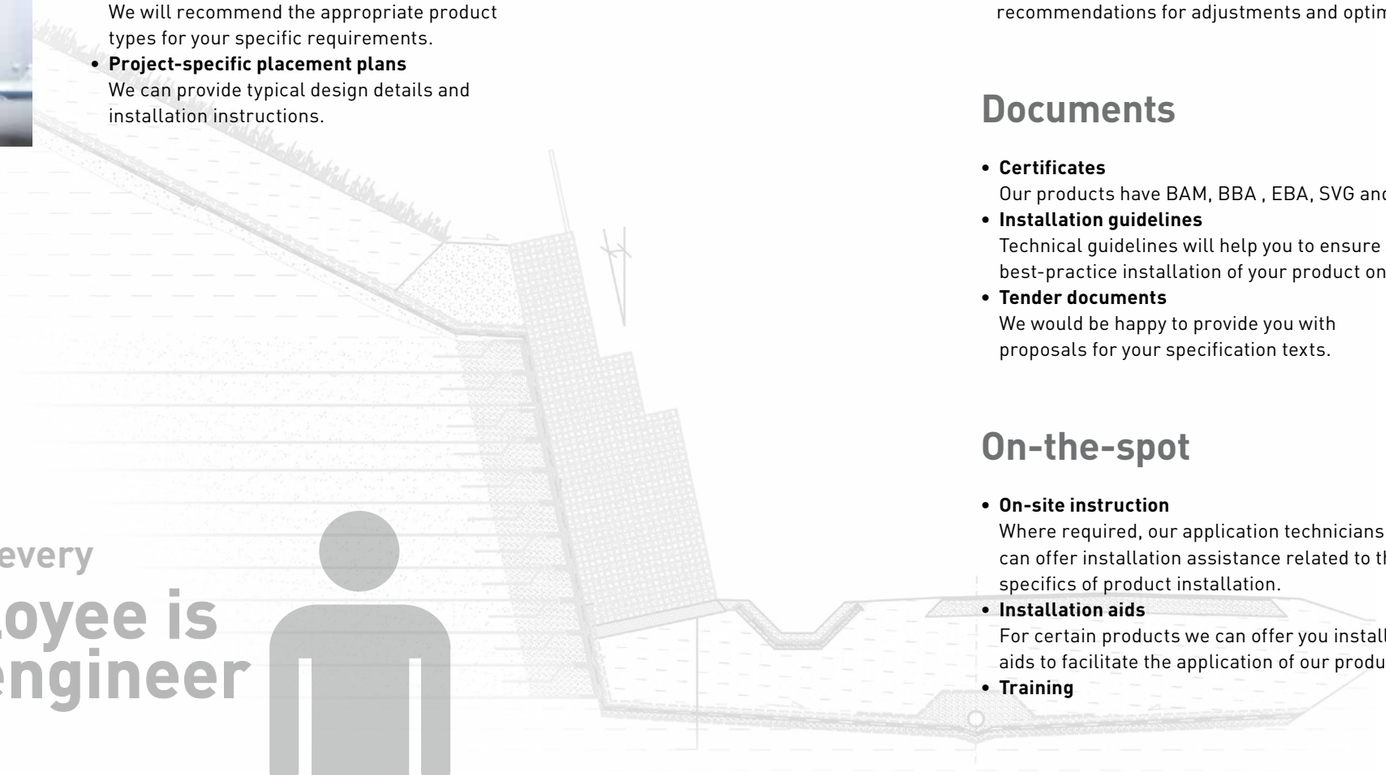
- **Custom-designed product solutions**
  We will partner you in developing custom-fabricated products to meet your particular requirements.
- **Alternative solutions**
  We can propose alternative design solutions as well as recommendations for adjustments and optimisation.

Documents

- **Certificates**
  Our products have BAM, BBA , EBA, SVG and IVG certification.
- **Installation guidelines**
  Technical guidelines will help you to ensure the best-practice installation of your product on site.
- **Tender documents**
  We would be happy to provide you with proposals for your specification texts.

On-the-spot

- **On-site instruction**
  Where required, our application technicians can offer installation assistance related to the specifics of product installation.
- **Installation aids**
  For certain products we can offer you installation aids to facilitate the application of our products.
- **Training**

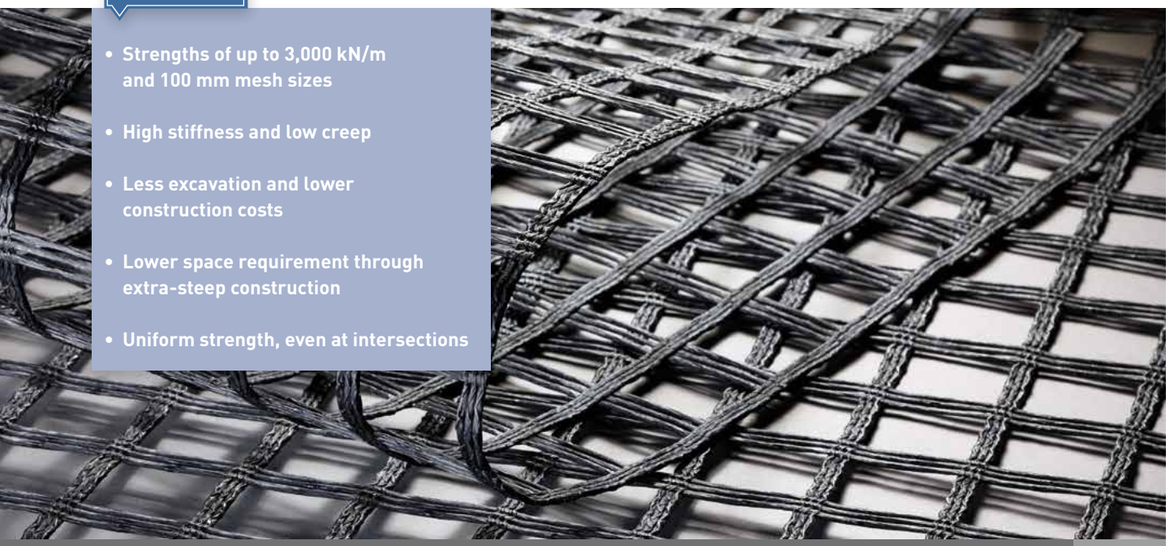


At HUESKER, every
7th employee is an engineer

Our products and applications

BENEFITS

- Strengths of up to 3,000 kN/m and 100 mm mesh sizes
- High stiffness and low creep
- Less excavation and lower construction costs
- Lower space requirement through extra-steep construction
- Uniform strength, even at intersections



Fortrac®

Bridging of Sinkholes

Geosynthetic Reinforced Soil

Embankments on Piles

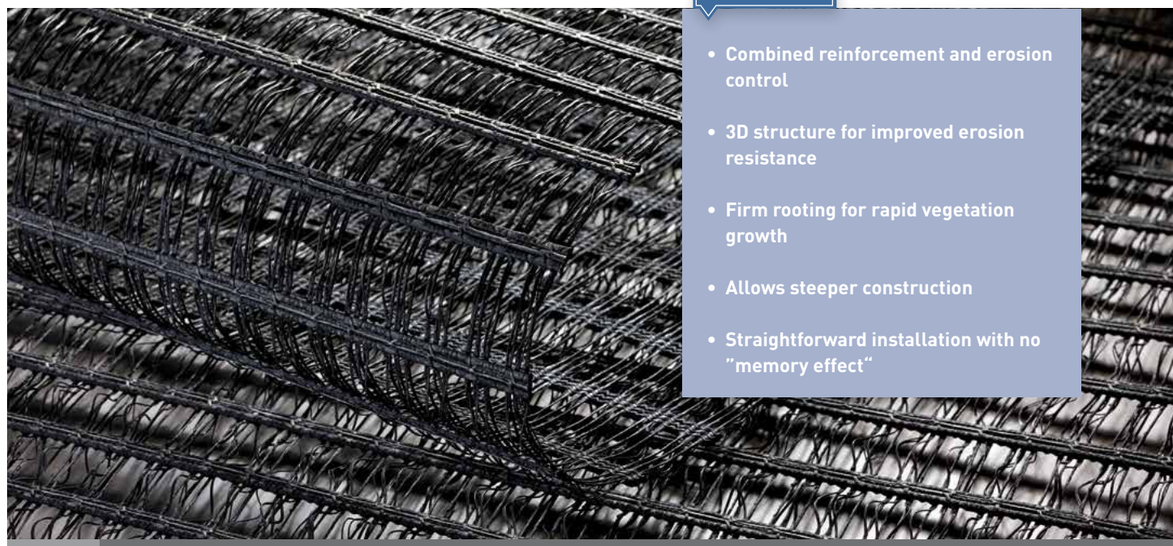
Immensely versatile solution for reinforced soil

Fortrac offers an all-round soil reinforcement solution. Three different raw materials cater for a tremendously broad range of applications while meeting the most strict project requirements. The extremely high tensile stiffness combined with low creep propensity of Fortrac A allows for example the efficient protection of areas prone to subsidence under stringent requirements.
The high level of performance achieved by Fortrac helps to cut costs: this is because the high design strength allows the economical specification of lower strength values. Thanks to the pH resistance of their constituent material, type Fortrac M geogrids offer particularly cost-effective installation by allowing the use of local soils – including soils that exhibit extreme pH values or have been improved by hydraulic binders such as cement or lime. In many cases, e.g. with embankment foundations, the reinforcing performance of the product can reduce the need for cost-intensive excavation works or allows extra-steep construction with a lower space requirement.
The manufacturing process of Fortrac geogrids eliminates any possibility of structural molecular changes that may lead to weak points, especially at the intersections.
Fortrac geogrids are certified to key international assessment standards and HUESKER can provide extensive quality testing and verification data which validate the reliability of the product.

Fortrac	
Material	PET, PVA, Aramid
Tensile strength(s)	Up to 3,000 kN/m
Coating(s)	Polymer
Function(s)	Reinforcement

BENEFITS

- Combined reinforcement and erosion control
- 3D structure for improved erosion resistance
- Firm rooting for rapid vegetation growth
- Allows steeper construction
- Straightforward installation with no "memory effect"



Fortrac 3D®

Slope stabilisation made easy

Fortrac 3D – a reinforcement grid with a three-dimensional structure – offers a supreme combination of reinforcement and erosion control and facilitates vegetation on steep slopes. The optional planting of vegetation creates natural-looking, visually appealing structures.

Fortrac 3D is manufactured from a flexible material that makes it fast and straightforward to install, without any "memory effect" (i.e. it shows no tendency to roll up after un-rolling). The product's durability is further enhanced by the polymer coating, which protects against UV radiation and installation damage.

Fortrac 3D is the product for anti-slip reinforcement and erosion control.

Dams and Dikes

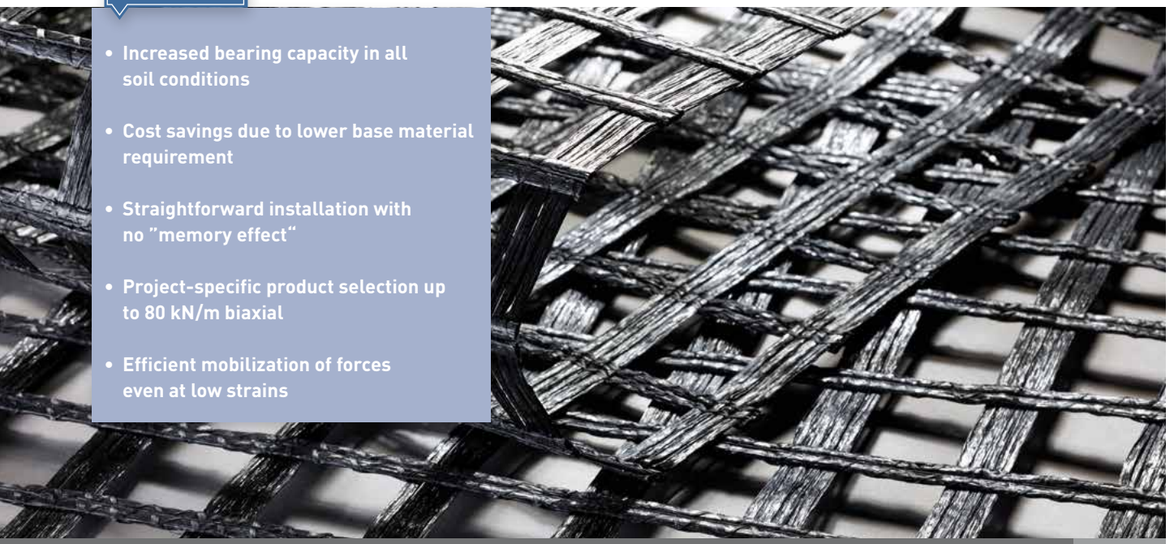
Landfill Construction

Landscape Construction

Fortrac 3D	
Material	PET, PVA
Tensile strength(s)	Up to 300 kN/m
Coating(s)	Polymer
Function(s)	Reinforcement, Protection (erosion protection)

BENEFITS

- Increased bearing capacity in all soil conditions
- Cost savings due to lower base material requirement
- Straightforward installation with no "memory effect"
- Project-specific product selection up to 80 kN/m biaxial
- Efficient mobilization of forces even at low strains



Basetrac® Grid

Temporary and Permanent Roads

Base reinforcement for use in all soil conditions

Basetrac Grid is the standard product for base reinforcement applications available in two raw materials. The alkali resistance of the polypropylen material allows its use even in cement-stabilized soils. The flexible material exhibits no memory effect (i.e. it shows no tendency to roll up after laying), allowing much faster and easier installation than with similar products.

The high interaction flexibility allows good interaction between soil and reinforcement grid. Cost savings can be achieved through project-specific selection of the required strength (20-80kN/m). The high-tensile geogrid, which is polymer-coated to protect against UV radiation and installation damage, provides reliable long-term reinforcement for base courses.

Basetrac Grid has been shown to reduce the quantity of base material needed, in comparison to unreinforced constructions. All this makes Basetrac Grid a safe and durable solution for base reinforcement.

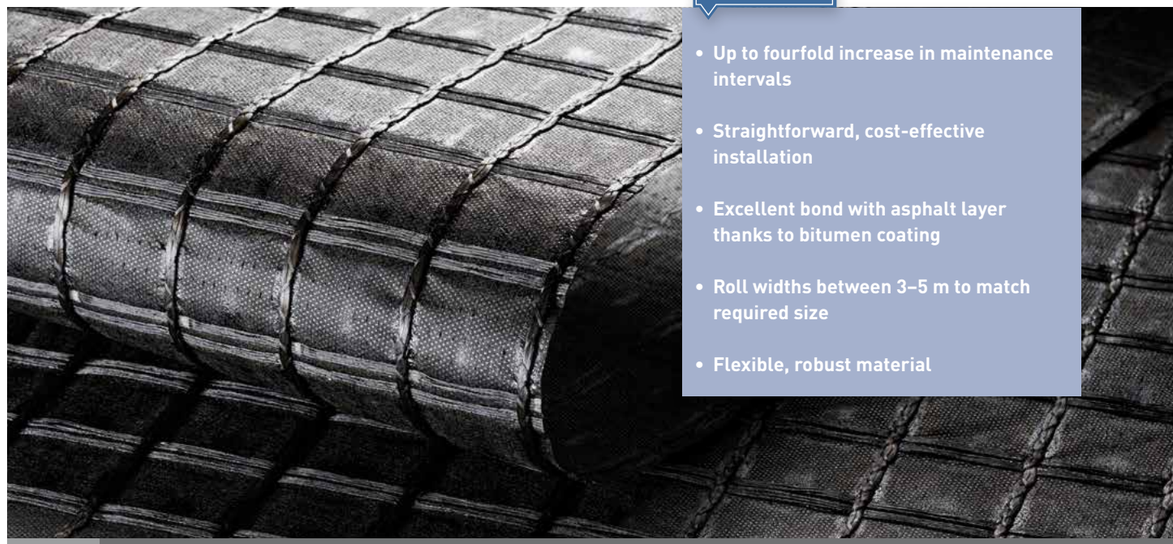
Railways

Working Platforms

Basetrac Grid	
Material	PP, PET
Tensile strength(s)	Biaxial up to 80 kN/m
Coating(s)	Polymer
Function(s)	Reinforcement

BENEFITS

- Up to fourfold increase in maintenance intervals
- Straightforward, cost-effective installation
- Excellent bond with asphalt layer thanks to bitumen coating
- Roll widths between 3–5 m to match required size
- Flexible, robust material



HaTelit®

The benchmark in asphalt reinforcement

HaTelit asphalt reinforcement is HUESKER's durable and cost-effective solution for the rehabilitation of asphalt pavements. The reinforcement grid's flexibility and strength not only permits its installation on milled surfaces, but also extends the service life of asphalt pavements, even under high loads.

The bituminous coating ensures optimum bonding between the biaxial reinforcement and the asphalt layer. Stress concentrations are reduced and reflective cracking thereby actively retarded.

Particularly advantageous is the fact that HaTelit and asphalt have similar coefficients of thermal expansion. This minimizes the occurrence of internal stresses, thus allowing homogeneous integration of the geogrid in the asphalt layer. The wafer-thin nonwoven backing, which facilitates the laying operation, and customized roll widths help to speed up installation while cutting costs.

HaTelit boasts a long track record of quality on which you can fully rely. HaTelit C is also available in the environmentally friendly ecoLine version. Made of high-quality PET recycling material, HaTelit eco shows the same technical properties as the original product.

HaTelit BL builds on the advantages of HaTelit and is specially designed for the rehabilitation of small asphalt and concrete pavement areas. The integrated, self-adhesive bitumen sheet allows fast and straight-forward refurbishment of the asphalt.

Rehabilitation of Asphalt Pavements

Permanent Roads and Pavements

Rehabilitation of Concrete Pavements with Asphalt

HaTelit	
Material	PET, PVA, Glass
Tensile strength(s)	Biaxial up to 100 kN/m
Coating(s)	Bituminous
Function(s)	Reinforcement

BENEFITS

- Safe long-term support with negligible deformation
- Long service life in all areas of a mine or quarry
- FRAS rating meets all requirements of Mine Safety and Health Administration (MSHA)
- High visibility coating

Minegrid®

Longwall Recovery,
Highwall and Rib Support

The original Minegrid – reliable, safe and sustainable

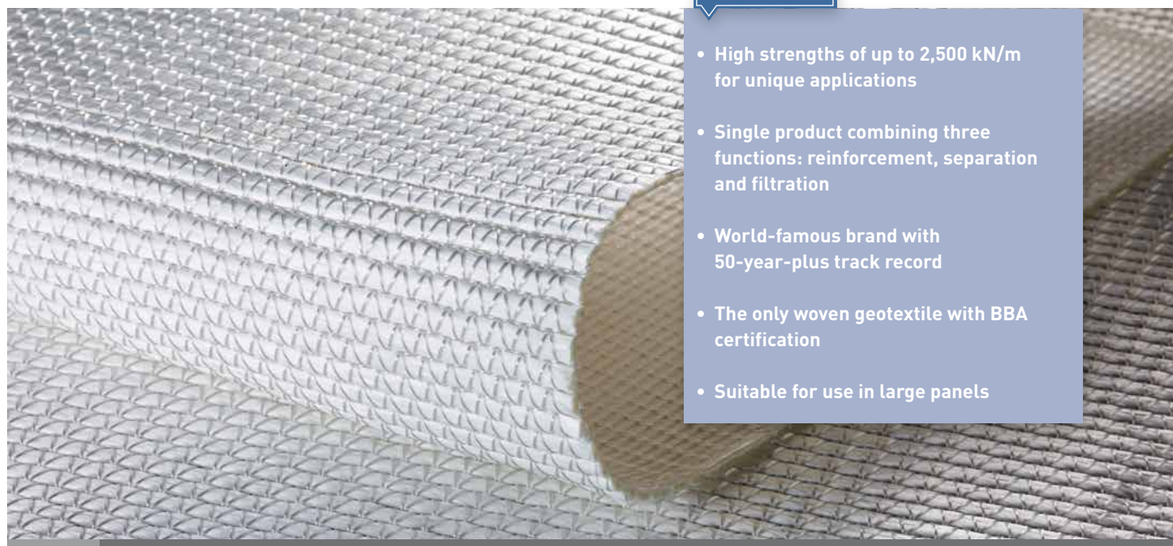
For more than 20 years Minegrid has been used to recover longwalls, support ribs, and reinforce highwalls in mines and quarries around the world. Minegrid has proven itself in the most extreme conditions and has always been the industry standard for quality.

Minegrid is manufactured and woven under tension from high-tenacity synthetic materials such as polyester [PET] and polyvinyl alcohol [PVA]. Our highly sophisticated Minegrid is coated with a flame-resistant, anti-static coating, which meets all the requirements of the Mine Safety and Health Administration. Minegrid has an unequalled safety record, and mines and quarries depend on Minegrid to enhance safety, production, and profitability in their operations. Standard tensile strengths range from 35 kN/m to 1,000 kN/m however, HUESKER is capable of manufacturing tensile support solutions which goes well beyond this.

Minegrid	
Material	PET, PVA
Tensile strength(s)	Up to 1,000 kN/m standard
Coating(s)	Flame-resistant, anti-static
Function(s)	Reinforcement, Protection

BENEFITS

- High strengths of up to 2,500 kN/m for unique applications
- Single product combining three functions: reinforcement, separation and filtration
- World-famous brand with 50-year-plus track record
- The only woven geotextile with BBA certification
- Suitable for use in large panels



Stabilenka®

The worldwide uniquet Woven Reinforcement Fabric

Stabilenka is with high strengths of up to 2,500 kN/m uniaxial and 1,000 kN/m biaxial, the world's strongest woven reinforcement fabric (next to Stabilenka Xtreme). Its impeccable track record has earned it a worldwide reputation. Not surprisingly, it is the only woven product on the market with BBA certification for supreme quality and reliability. This is achieved by the state-of-the-art manufacturing process of moduli exceeding 25,000 kN/m and strict qualtity assurance regime operated by HUESKER. Numerous certifications and proven resistance of up to 120 years, to chemical, physical and microbiological action have made Stabilenka one of the best performing woven reinforcement products anywhere in the world.

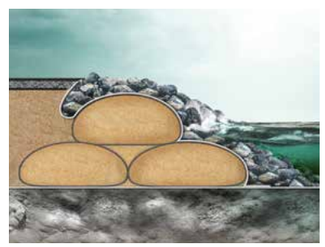
Stabilenka is capable of meeting even the most challenging project requirements. Individual sheets can, for example, be stitched together into large panels such as those needed for sludge lagoon capping or underwater installation. The constituent raw material offers high stiffness coupled with low creep – the uniformly high tensile strength serving to minimize structural deformation.

Stabilenka – the last word in reinforcement.

Stabilenka	
Material	PET
Tensile strength(s)	Uniaxial up to 2,500 kN/m; biaxial up to 1,000 kN/m
Function(s)	Reinforcement, Separation, Filtration

Embankments on Soft Soil

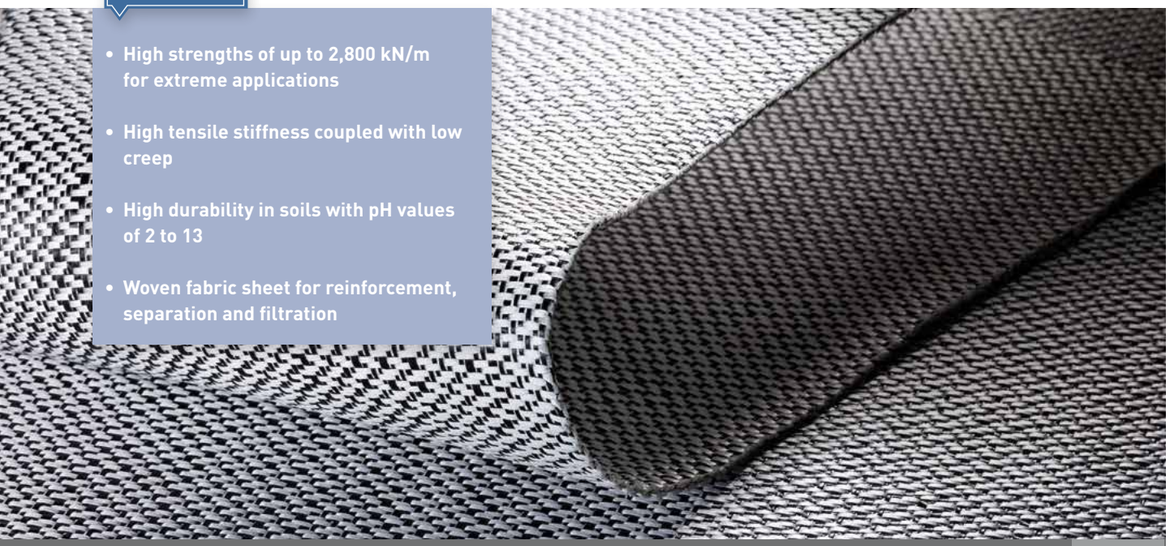
Geotextile Encased Columns



Land Reclamation

BENEFITS

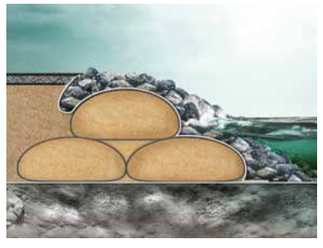
- High strengths of up to 2,800 kN/m for extreme applications
- High tensile stiffness coupled with low creep
- High durability in soils with pH values of 2 to 13
- Woven fabric sheet for reinforcement, separation and filtration



Stabilenka® Xtreme

Embankments on Soft Soil

Sludge Lagoon Remediation



Land Reclamation

Highest strength even under alkaline conditions

Stabilenka Xtreme consist of PVA and is acid- and alkaliresistant for pH values between 2 and 13, allowing the use with all soil types, including even peat. Stabilenka Xtreme ist manufactured from special multifilament yarn that allows the achievement of moduli exceeding 45,000 kN/m. The high-modulus material provides even greater axial stiffness coupled with extremely low creep. The immediate load take-up guarantees very low structural deformationand thus offers maximum reliability for your projects.

Stabilenka Xtreme offers tensile strengths of up to 2,800 kN/m uniaxial and 1,400 kN/m biaxial to cater for extreme applications. Moreover, in many cases, cost savings can be achieved by specifying a single layer of Stabilenka Xtreme reinforcement instead of a multi-layer solution.

The product combines three functions in one: reinforcement, separation and filtration. By virtue of its strong and versatile performance, Stabilenka Xtreme reigns supreme in its class.

Stabilenka Xtreme	
Material	PVA/PP
Tensile strength(s)	Uniaxial up to 2,800 kN/m; biaxial up to 1,400 kN/m
Function(s)	Reinforcement, Separation, Filtration

BENEFITS

- Cylindrical seamless reinforcement sleeve for uniform tensile strength and axial stiffness
- Robust foundations, even in extremely soft/liquefied soils and in earthquake regions
- Technical design service available
- Megadrain function for rapid soil consolidation
- Cost savings through project-specific product selection

Ringtrac®

Reliable Ground Improvement for Weak Soils

Ringtrac is the key component in an innovative foundation system suitable for use in wide-ranging soil conditions. Combining high tensile strength and axial stiffness, the seamless, cylindrical reinforcement sleeve creates a clearly defined column regardless of soil conditions, even in extremely soft conditions. Ringtrac is used to construct GEC's.

GEC's are ideal for constructing embankment foundations for development land reclamation and as a reliable foundation system in earthquake regions – with the flexible material serving to enhance the ductility of the sand columns. Ringtrac is available in a range of different strengths, raw materials and diameters (0.4 – 1.0 m) to meet your project-specific requirements and financial targets. The column length is also variable (up to at least 30 m), thereby allowing the construction of very deep column foundations. By doubling up as megadrains, the water-permeable Ringtrac columns ensure rapid soil consolidation.

Ringtrac is also a suitable temporary formwork sleeve when installing concrete columns in extremely soft or karst soils. Through HUESKER's technical design service, you also have optional access to the expert support of the company's engineers. Ringtrac offers the perfect all-round solution.

Geotextile Encased Columns (GEC)

Ringtrac	
Material	PET, PVA
Tensile strength(s)	Up to 600 kN/m
Function(s)	Reinforcement, Separation, Filtration, Drainage (foundation element)

BENEFITS

- Increased bearing capacity in all soil conditions
- Straightforward installation with no "memory effect"
- Project-specific product selection up to 100 kN/m biaxial strength
- Possible use in large panels

Basetrac® Woven

Temporary Roads

Permanent Roads and Pavements

Separation, filtration and stabilization in a single product

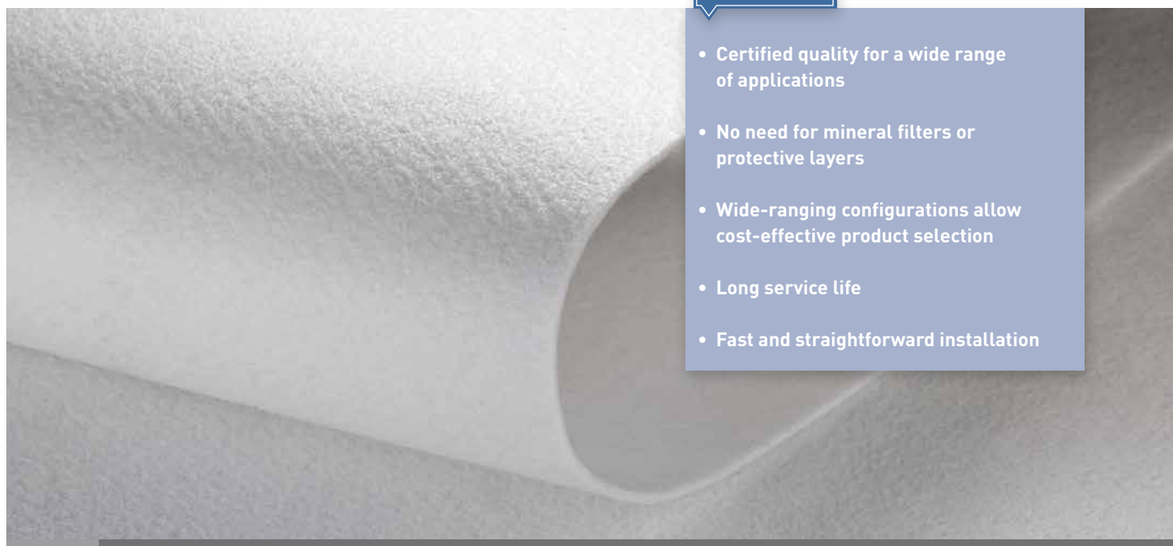
Basetrac Woven is typically used to stabilize surfaces in road and pavement construction. The fine-meshed texture of Basetrac Woven enables it to fulfil a separation, filtration and stabilization function. Cost savings can be achieved through project-specific selection of the required biaxial strength (up to 100 kN/m) and the use of large panels to simplify installation over wide areas.

Often specified as an alternative to nonwovens, Basetrac Woven guarantees reliable application in accordance with the German M Geok E-StB („Guidance Paper on the Use of Geosynthetics in Earthworks for Roadbuilding Projects"). The alkali resistance of the constituent material allows its use in cement-stabilized soils.

Basetrac Woven	
Material	PP
Tensile strength(s)	Biaxial up to 100 kN/m
Function(s)	Reinforcement, Separation, Filtration, Stabilization

BENEFITS

- Certified quality for a wide range of applications
- No need for mineral filters or protective layers
- Wide-ranging configurations allow cost-effective product selection
- Long service life
- Fast and straightforward installation



Nonwoven

Separation, filtration, protection, containment

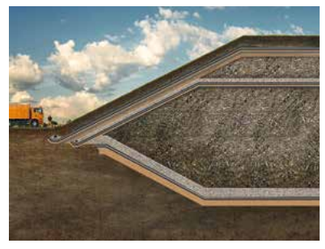
HUESKER nonwovens serve a wide variety of functions, including separation, filtration, protection and containment. In addition to the benefits of supreme product quality and versatility, customers can also choose from a wide range of options to obtain a cost-effective solution tailored to their projects. Products are available with widths from 0.5 up to 6.0 m and weights from 100 up to 4,000 g/m². A variety of raw materials can be specified, with or without woven reinforcement.

Our nonwovens eliminate the need for mineral filters and protective layers. The more compact layer structure may also – e.g. in the case of landfill sites – boost the facility's capacity. The possibility of using coarse-grained excavation material with the nonwoven further cuts costs due to the reduction of transportation volumes.

Given that the product is industrially manufactured, constant quality over the full area is guaranteed. The material's flexibility make it fast and easy to install. When custom-fabricated as sand containers, the product allows the accurate and reliable positioning of fill.

HUESKER nonwovens offer an incredibly versatile solution for diverse applications.

Revetments

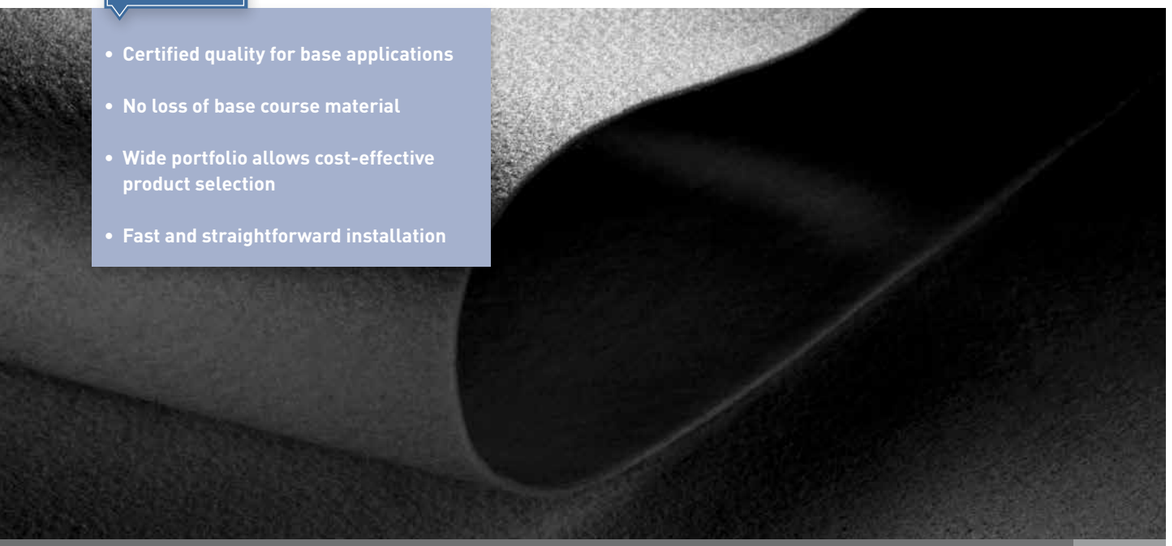


Landfill Construction

Nonwoven	
Material	PP, PET, PA, PEHD, PAC
Function(s)	Separation, Filtration, Protection
Weight	Up to 4,000 g/m² (optionally with woven fabric reinforcement)

BENEFITS

- Certified quality for base applications
- No loss of base course material
- Wide portfolio allows cost-effective product selection
- Fast and straightforward installation



Basetrac® Nonwoven

Permanent Roads and Pavements

Temporary Roads

Separation and filtration for base applications

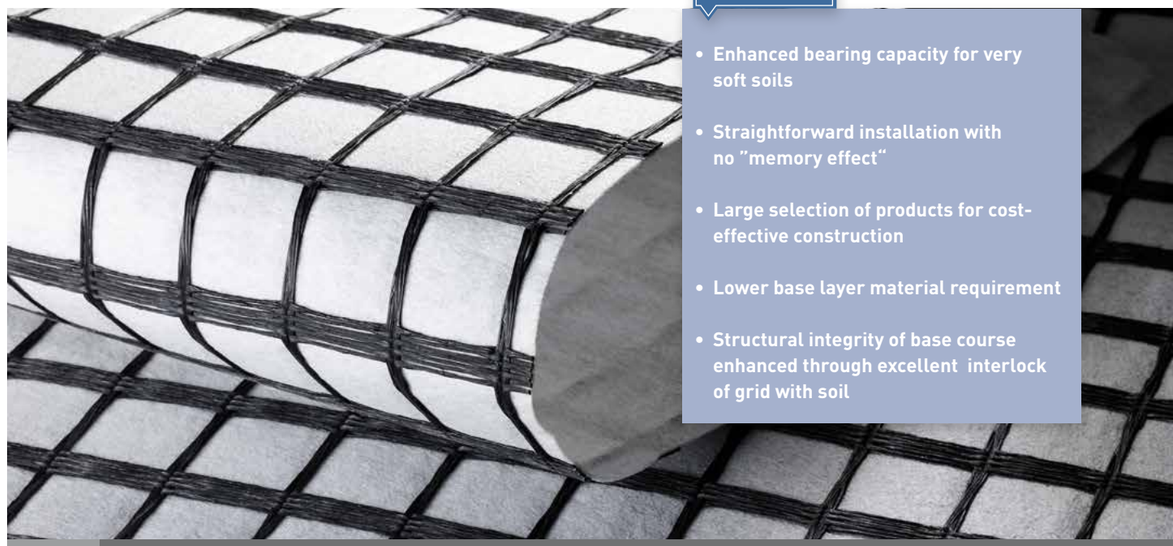
Basetrac Nonwoven serve two functions: separation and filtration. In base course constructions, Basetrac Nonwoven products serve the purpose of separating the base course material from the subgrade and preventing a "pumping effect", i.e. the infiltration of fine soil particles into the base course. They avert the loss of base course material, which may otherwise sink into the subgrade, and thereby maintain the shear strength of the base course. In addition to the benefits of high product quality and versatility, customers can also choose from a range of options to obtain a cost-effective solution tailored to their projects. Products are available with widths from 1 to 5 m and weights from 100 to 350 g/m² with different raw materials.

Basetrac Nonwoven products meet all relevant application standards, such as the HPQ for railway engineering (German manufacturer-related product qualification). They are typically specified for soils of adequate bearing capacity (strain modulus E_{V2} > 35 MN/m²) and complement the other products in the Basetrac range for base course applications.

Basetrac Nonwoven	
Material	PP, blended fibre
Function(s)	Separation, Filtration
Grammage	Up to 350 g/m²

BENEFITS

- Enhanced bearing capacity for very soft soils
- Straightforward installation with no "memory effect"
- Large selection of products for cost-effective construction
- Lower base layer material requirement
- Structural integrity of base course enhanced through excellent interlock of grid with soil



Basetrac® Duo-C

Ideal for very soft soils

Basetrac Duo-C is the product of choice for base reinforcement on soils with low bearing capacity. The integral nonwoven separates the high-grade base material from the soft subgrade. Moreover, the large range of product types and the flexible material, which is HUESKER's hallmark, allow straightforward, cost-effective installation with no "memory effect".

Basetrac Duo-C is a composite material – geogrid plus nonwoven – that combines reinforcing and separating functions. This reduces the base material depth requirement while offering reinforcing.

The product offers performance quality and reliability in very soft soil conditions.

Temporary and Permanent Roads

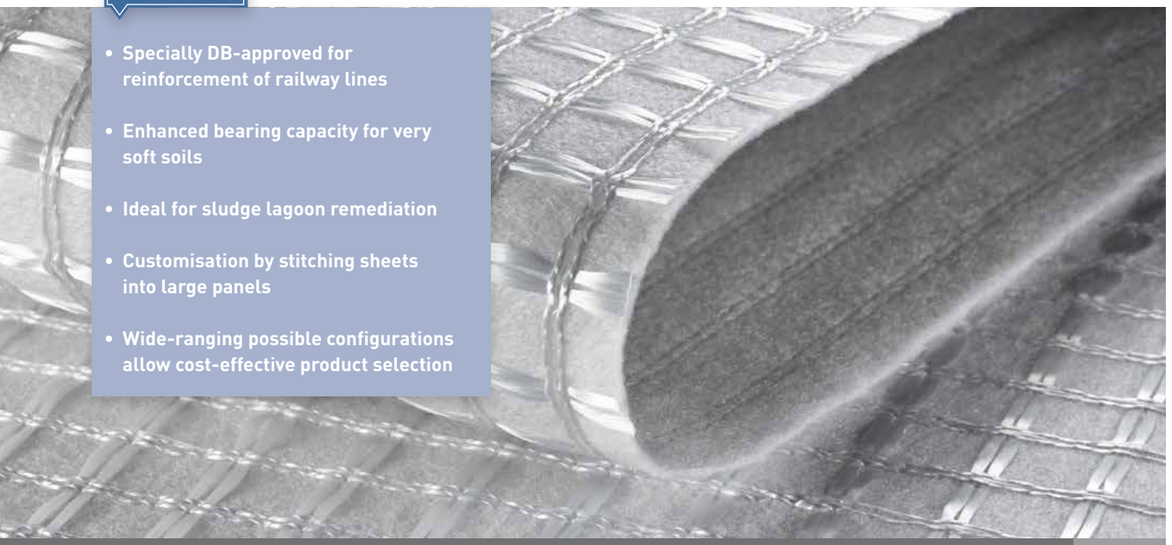
Railways

Working Platforms

Basetrac Duo-C	
Material	PP, PET, PVA
Tensile strength(s)	Biaxial up to 110 kN/m
Coating(s)	Polymer
Function(s)	Reinforcement, Separation, Filtration
Other	Composite (geogrid and nonwoven)

BENEFITS

- Specially DB-approved for reinforcement of railway lines
- Enhanced bearing capacity for very soft soils
- Ideal for sludge lagoon remediation
- Customisation by stitching sheets into large panels
- Wide-ranging possible configurations allow cost-effective product selection



Basetrac® Duo

Sludge Lagoon Remediation

Railways

Permanent Roads and Pavements

A unique type of reinforcement

Basetrac Duo offers excellent reinforcing performance, especially for special applications. Apart from its use in road and highway construction, Basetrac Duo is a proven base reinforcement for railway lines.

Basetrac Duo comprises a combination of a nonwoven geotextile and a reinforcement grid that ensures an excellent interlock with the granular layers and prevents the migration of fine soil particles from the underlying soils. The fact that Basetrac Duo can be readily stitched together into large panels also makes it ideal for sludge lagoon remediation – where the use of large panels simplifies and speeds up the capping process. The separation and filtration properties of the integral nonwoven also considerably increase stability, thereby eliminating the need for soil replacement.

Basetrac Duo truly is a reinforcement product in a class of its own.

Basetrac Duo	
Material	PVA, PET, PP (nonwoven)
Tensile strength(s)	Up to 1,200 kN/m
Function(s)	Reinforcement, Separation, Filtration
Other	Composite (geogrid and nonwoven)

BENEFITS

- Ideal for rehabilitation with asphalt overlay
  – of concrete pavements
  – of roads subject to height restrictions
  – of concrete surfaces damaged by alkali-silica reaction (ASR)
- Combines stress relief with sealing and reinforcement
- Up to threefold increase in maintenance intervals

SamiGrid®

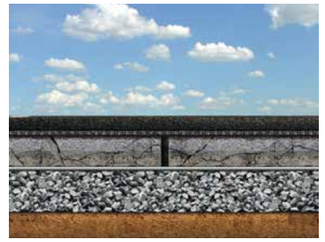
Product of choice for rehabilitation of concrete pavements with asphalt

SamiGrid adds to the benefits already offered by the time-tested HaTelit brand. With polyvinyl alcohol (PVA) as its constituent material, SamiGrid is resistant to alkaline environments. As it can be laid directly onto concrete, it is thus perfectly suited for the rehabilitation of concrete pavements using an asphalt overlay.

The bitumen coating of the reinforcement grid ensures a strong bond with the asphalt. Saturation of the nonwoven with bitumen after installation also enables SamiGrid to fulfil a sealing and stress-relieving function, making it ideal when applying an asphalt overlay to concrete surfaces damaged by alkali-silica reaction (ASR).

SamiGrid also obviates the need for an asphalt regulating course and thus offers an excellent solution for concrete roads. Depending on the climate, the combination of nonwoven and PVA grid provides stress relief or reinforcement, due to thermal expansion/contraction.

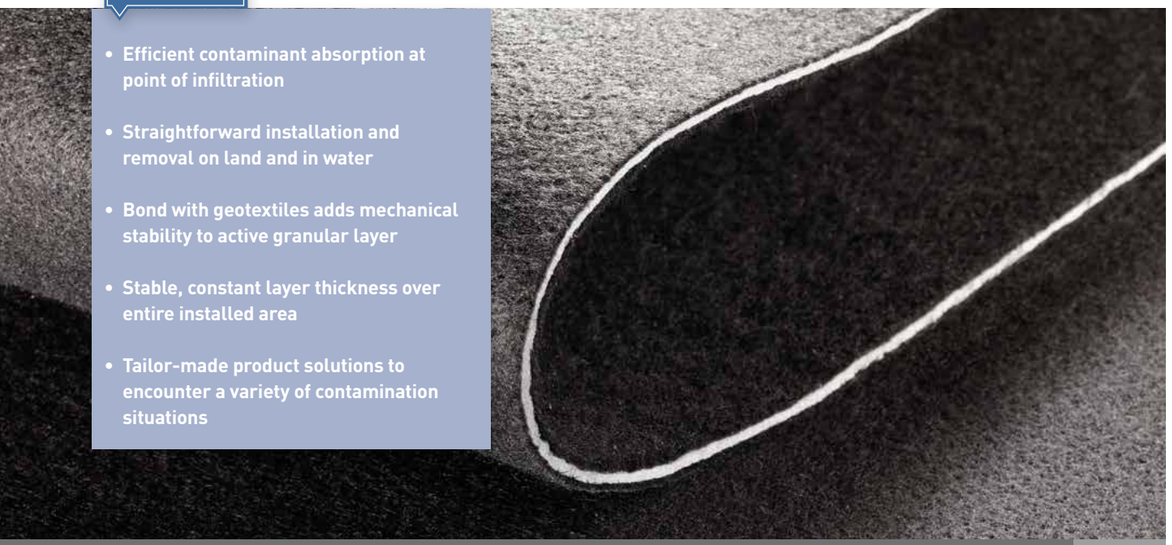
SamiGrid is an unbeatable choice for the rehabilitation of concrete pavements with asphalt.



Rehabilitation of Concrete Pavements

Permanent Roads and Pavements

SamiGrid	
Material	PVA
Tensile strength(s)	50 kN/m biaxial
Coating(s)	Bituminous
Function(s)	Reinforcement, Sealing, Stress-Relieving



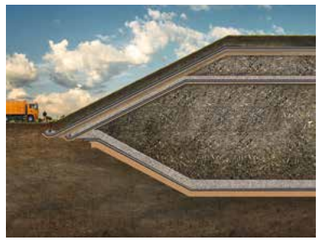
BENEFITS

- Efficient contaminant absorption at point of infiltration
- Straightforward installation and removal on land and in water
- Bond with geotextiles adds mechanical stability to active granular layer
- Stable, constant layer thickness over entire installed area
- Tailor-made product solutions to encounter a variety of contamination situations

Tektoseal® Active

Groundwater Protection

Industrial wasteland



Landfill Construction

Containment absorption with Active Geo-Composites

HUESKER's Tektoseal Active sets new benchmarks in eco-efficient construction and environmental measures for groundwater protection and contaminated site remediation.

The active geocomposite products are available in a variety of forms. Specifically for groundwater protection, we offer numerous barrier and filter products for applications involving contaminated surface water and leachate. Tektoseal Active delivers a reliable geosynthetic decontamination solution in cases where it is not feasible to relocate the polluted material.

Tektoseal Active AS is a mechanically reinforced oil absorption agent that reliably binds petrochemical products. An ideal solution for contaminant adsorption is Tektoseal Active AC with its activated carbon core. Tektoseal Active CP is ideal for applications where heavy metals and also radioactive materials have to be removed safely and permanently.

Our engineers will analyse your individual requirements and provide you with a solution which is literally tailor-made to your needs. In addition to rolls up to 5 m width, we also supply large panels which, if necessary, can be stitched together on site.

Tektoseal Active	
Active layer	Oil absorbing polymer, different types of activated carbon, natural calcium phosphate
Top / bottom layer	Polypropylene (PP) / polyester (PET) woven or nonwoven, geogrid to protect
Function(s)	Adsorption of petrochemical products / contaminant Adsorption with activated Carbon / long-term binding of heavy metals and radioactive (radioactive substances)
Contaminants	Oil, diesel, petrol, kerosene, VOC, TBT, PAH, PCB, Pb, U, Pu, Cd, Zn, Sr e.g.

BENEFITS

- Installation under difficult hydraulic conditions
- Filtration-stable revetment construction with enhanced protection against displacement
- Simplified installation through factory-installed ballast
- Permanent protection of polymer liners

Tektoseal® Sand

Easy filter installation underwater and protective layer system for landfills

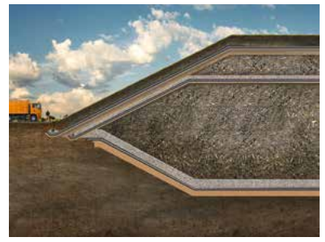
Tektoseal Sand is a three-layer geocomposite with encapsulated quartz sand that allows the installation of a geotextile filter under difficult site conditions.

Tektoseal Sand lends itself to use wherever, given the local hydraulic conditions, the installation of standard geotextile filters would be impossible or would necessitate undue cost and effort. The higher weight per unit area achieved by the quartz sand filling simplifies installation and offers enhanced protection against displacement. This allows the trouble-free, filtration-stable installation of revetments even under water.

The Tektoseal Sand PR 10.000 product can also be used as a combined protective layer system for the bottom linings of landfill sites. The combination of nonwovens certified by the German Federal Institute for Materials Research and Testing and a centrally arranged sand content of 10,000 g/m² offers proven long-term protection of polymer liners in a landfill environment. In addition to its excellent protective performance, this hybrid solution exhibits outstanding frictional properties in slope areas and is relatively cost-effective to install.

Tektoseal Sand	
Material	Certified nonwovens, encapsulated quartz sand
Sand content	Up to 6 kg/m²
Function(s)	Displacement-resistant filter for under-water installation, protective layer system for landfill bottom linings

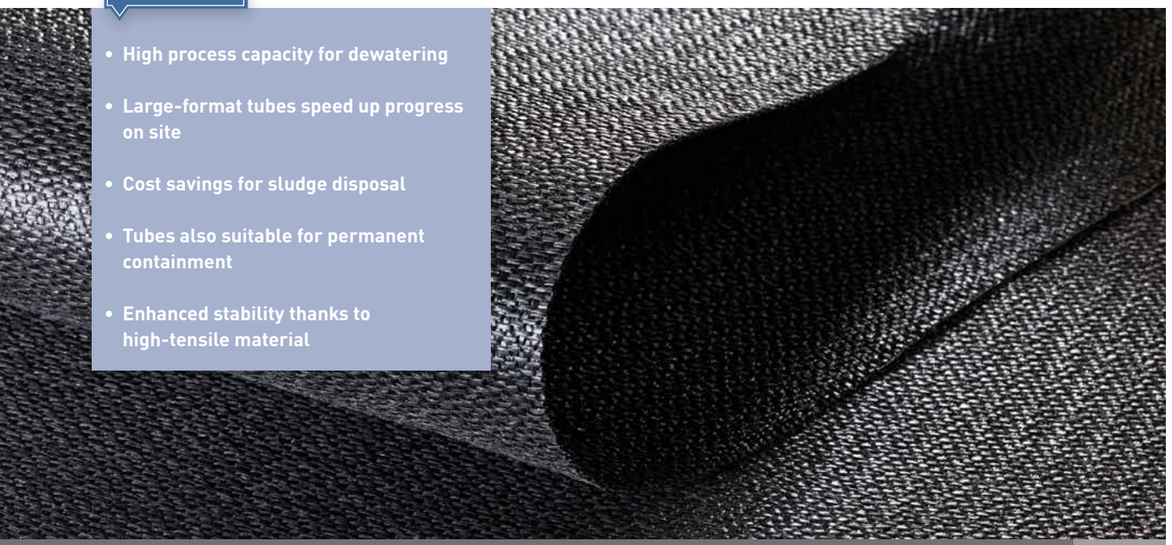
Revetments



Landfill Construction

BENEFITS

- High process capacity for dewatering
- Large-format tubes speed up progress on site
- Cost savings for sludge disposal
- Tubes also suitable for permanent containment
- Enhanced stability thanks to high-tensile material



SoilTain® Dewatering

Tube Dewatering

Efficient sludge dewatering

SoilTain tubes offer a fast and economical means of sludge dewatering. The large-format tubes offer high process capacity and high dewatering performance while taking up a relatively small area. This helps to speed up progress on site.

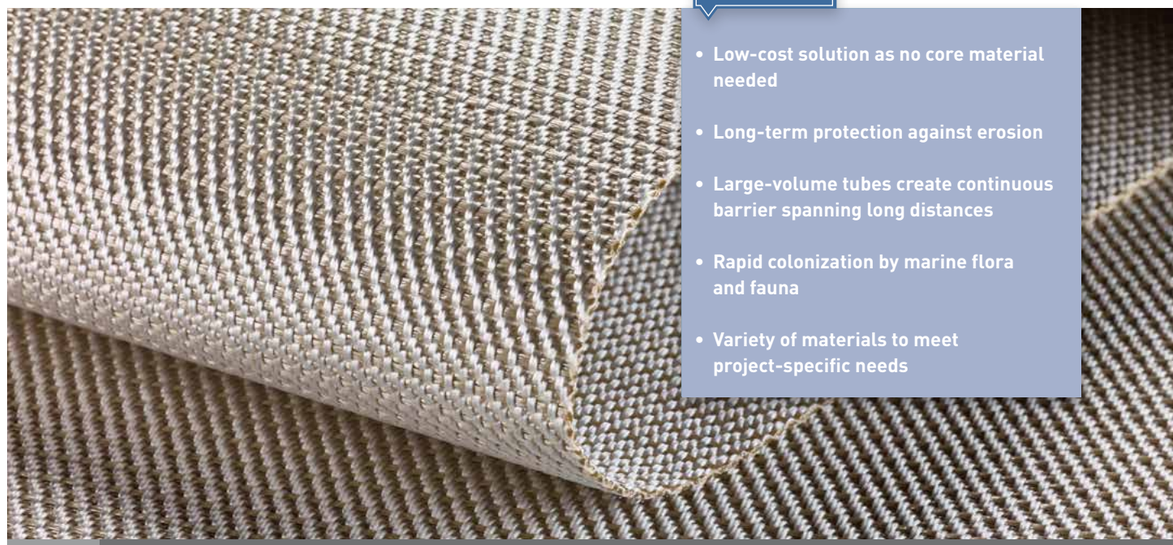
The tubes, which are made of purpose-developed, high-performance woven filter material, can be stacked to increase storage capacity. Cost savings are also achieved by the lower machinery requirement for dewatering and transportation of the sludge from the site. The tubes can even be used for permanent containment of the consolidated sludge. There is no risk of rewetting, e.g. by rainwater, even where the tubes are in use for longer periods. The final dry solids content is accordingly greater than that achievable by dredge dump dewatering. SoilTain not only acts as a reliable, long-term containment system, it also minimizes the odour emissions from the sludge.

SoilTain offers a state-of-the-art solution to sludge dewatering.

SoilTain Dewatering	
Material	PP
Function(s)	Filtration, Drainage, Containment
Storage volume(s)	Up to 1,600 m^3
Circumference(s)	Up to 28 m

BENEFITS

- Low-cost solution as no core material needed
- Long-term protection against erosion
- Large-volume tubes create continuous barrier spanning long distances
- Rapid colonization by marine flora and fauna
- Variety of materials to meet project-specific needs



SoilTain® Coastal Protection

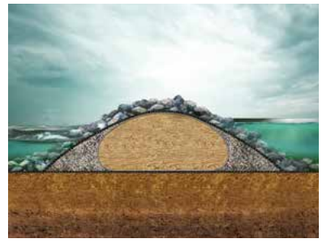
Economical and eco-friendly coastal protection

SoilTain tubes for coastal protection offer a cost-effective and natural-looking alternative to concrete and stone. The tubes can be filled with locally sourced materials such as sand, thereby eliminating the need for conventional rock core material. The securely retained sand ensures the long-term protection of coastlines and river banks, with the large-volume tubes allowing the construction of a continuous barrier over long distances.

The composite version of SoilTain comprises a nonwoven and woven that are mechanically bonded. As the outer nonwoven layer encourages the natural deposition of soil particles, this serves to increase abrasion resistance and lengthen the service life. Durability is also enhanced by the higher soil retention capacity within the composite tube. Visually, the sand-coloured material blends well with the landscape setting and is rapidly colonized by marine flora and fauna.

As always, HUESKER offers a variety of constituent materials to allow economical, project-specific selection of the most suitable product.

SoilTain Coastal Protection	
Material	PP, PET
Function(s)	Reinforcement, Separation, Filtration, Containment, Protection
Types	Bags, containers, tubes
Storage volume(s)	0.3–700 m^3



Breakwaters

Dams and Dikes

Bank Protection

BENEFITS

- Elimination of heavy construction equipment on top of primary geomembranes
- Elimination of greatest threat to liner integrity
- Reduction of construction traffic
- Increased storage space for waste (e.g. tailings, coal ash)

SoilTain® Protect

Geosynthetic Flexible Ballast Layer

The ultimate geomembrane protection

SoilTain Protect is an innovative geotextile containment system manufactured utilizing state-of-the-art weaving technology, which provides a tubular system interconnected into a singular geosynthetic mattress configuration.

SoilTain Protect must be utilized wherever it is required to avoid solar and UV exposure on geomembranes. It increases the storage space, as waste, e.g. tailings or coal ash is being used to fill the containers. This HUESKER solution reduces construction time and the risk associated with the movement of operational plant and equipment over the primary liner. It provides positive enhancement to the economic, environmental and social sustainability of containment operations.

SoilTain Protect	
Material	PP
Types	With and without nonwoven for UV-protection
Function(s)	Protection, Containment

BENEFITS

- Uniform mattress thickness for improved sealing performance with Incomat Standard
- Straightforward underwater installation (canal rehabilitation is possible while facility remains in service)
- Project-specific fabrication:
  – 8–60 cm internal thickness
  – Various spacer tape strengths
  – Permeable or impermeable
  – Can be stitched together into large panels at site

Incomat®

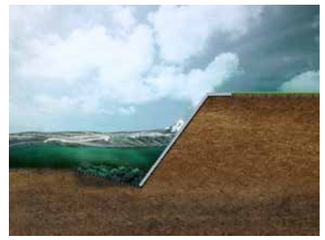
Ideal solution for protection of waterbodies (slopes and shores)

Incomat offers comprehensive protection for hydraulic engineering structures. The textile formwork acts as a surface sealing system while protecting against erosion, mechanical damage and buoyancy forces in waterbodies. The different product types – Incomat Standard, Flex, FP and Crib – deliver the ideal solution for a wide variety of requirements. The vertical spacers integrated in Incomat Standard guarantee the achievement of an exceptionally uniform mattress thickness for superior sealing performance. The fact that Incomat is also suitable for underwater installation enables many such projects to be implemented without the need to drain the canal or lower the operational water levels.

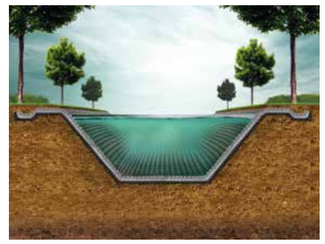
Incomat mattresses are custom-manufactured to meet project requirements. Our engineers will advise you on the ideal product thickness (8–60 cm), the maximization of mattress stability through the variation of spacer tape strengths, and the choice between permeable and impermeable product versions. This will help you to determine the most cost-effective solution for your project. The use of Incomat eliminates the need for conventional formwork erection, when using in-situ concrete slabs, thereby cutting construction times and costs in comparison to standard methods.

Given the product's 50-year-plus track record of success, you can rest assured that opting for Incomat is the right decision.

Incomat	
Material	PA/PE/PET
Types	Standard, Flex, FP and Crib
Function(s)	Sealing, Protection
Mat thickness(es)	Up to 60 cm



Bank Protection



Canals

Bed Protection

BENEFITS

- Reduced volume of earthworks and spoil transportation
- Better sealing performance than with standard mineral solutions
- High shear strength through precision needling
- Straightforward, low-dust installation to speed up progress on site
- Self-healing effect to remedy unnoticed minor damage

Tektoseal® Clay

Water Reservoirs

Easy-to-install, cost-effective seal

Tektoseal is the new bentonite mat in HUESKER's construction range. Though less than 10 mm thick, the mat delivers better sealing performance than mineral liners. At the same time it significantly reduces the necessary earthworks and spoil transportation.

The incorporated nonwoven improves friction behaviour and allows installation on steep slopes (1:3 inclination). Compared to products with powdered bentonite, the incorporated granulated bentonite offers the advantage of low dust exposure and significantly better working conditions on site. In case of moisture exposure, this also limits the formation of a lubricating film on the surface, thereby simplifying installation. The 5.10 m roll width also speeds up the laying operations by reducing the number of overlaps.

Tektoseal exhibits low susceptibility to settlement and can accommodate up to 10 % elongation without any impact on permeability. The bentonite filling, with a high swelling capacity due to its 80–90 % montmorillonite content, automatically seals minor mechanical damage that may otherwise remain unnoticed, thereby enhancing long-term reliability. For landfill applications we also offer a Tektoseal Clay product according to German landfill suitability assessment (LAGA) with additional self-sealing edges.

Opt for Tektoseal as a truly cost-effective sealing solution for your projects.

Groundwater Protection

Dams and Dikes

Tektoseal Clay	
Material	PP (nonwoven and woven)/bentonite granulate (sodium)
Bentonite content	Up to 7 kg/m²
Hydraulic conductivity k	$3 \cdot 10^{-11}$ [m/s]
Function(s)	Sealing

BENEFITS

- Reduced volume of earthworks and spoil transportation
- Better sealing performance than with standard mineral solutions
- High shear strength through precision needling
- Straightforward, low-dust installation to speed up progress on site
- Self-healing effect to remedy unnoticed minor damage

NaBento®

The unique liner

NaBento bentonite mats offer better sealing performance than conventional mineral liners. The savings in height of up to approx. 50 cm can also be used to increase the landfill capacity.

To allow cost-effective, project-specific product selection, customers can state the quantity of encapsulated bentonite, choose between calcium and sodium bentonite and other mineral mixes, and specify one of several coatings. The unique bitumen emulsion coating provides enhanced protection against drying-out by reducing water migration from the inside to the outside of the product. The expanded shale coating increases shear resistance by improving friction behaviour at the interface with the surrounding soils.

The fact that NaBento bentonite mats can accommodate up to 10 % elongation – i.e. more than twice that tolerated by conventional mineral liners – makes them far less sensitive to settlement. The straightforward laying procedure speeds up installation. NaBento is specially used on landfill sites as it has been certified by LAGA according to the strict German environmental legislation.

The sealing performance offered by NaBento is guaranteed to benefit generations to come.

Landfill Construction

Groundwater Protection

Dams and Dikes

NaBento	
Material	PET (carrier geotextile)/ PP (cap geotextile)/ bentonite powder (sodium or calcium)
Coating(s)	Bituminous emulsion and expanded shale
Bentonite content	Up to 15 kg/m²
Hydraulic conductivity k	RL-N: $5 \cdot 10^{-11}$ [m/s] | RL-C: $7 \cdot 10^{-11}$ [m/s]
Function(s)	Sealing

HUESKER Synthetic GmbH

Fabrikstrasse 13–15
48712 Gescher, Germany
Phone: +49 (0) 25 42 / 701-0
Fax: +49 (0) 25 42 / 701-499
Mail: info@HUESKER.de
Web: www.HUESKER.com

HUESKER
Ideen. Ingenieure. Innovationen.