

# Discover the World of Geosynthetics

Product Overview

# Discover our solution competence

Our products and applications

Group	Functions								Products	Page	Earthworks and Foundations	Roads and Pavements	Environmental Engineering	Hydraulic Engineering	Mining		
	Reinforcement	Separation	Filtration	Sealing	Drainage	Protection	Containment	Absorption									
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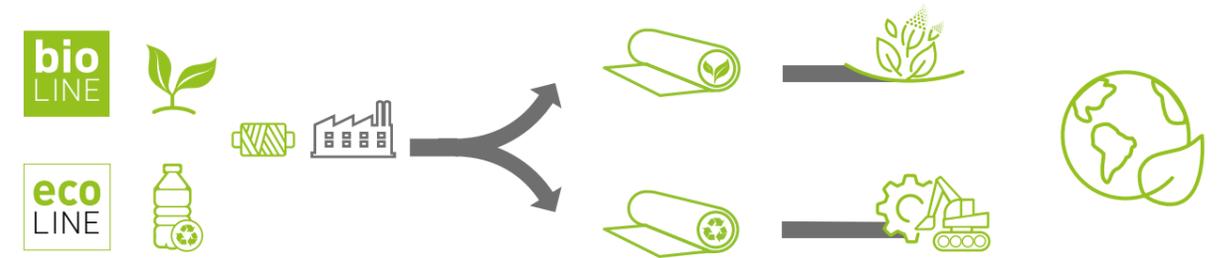
# Environmentally conscious products for our world

ecoLine and bioLine - products made from recycled and natural raw materials



## Future-proof and sustainable: our innovative products

Our planet's natural resources are precious - which is why we develop solutions that bring about sustainable change. With our ecoLine and bioLine product lines, we promote responsible construction through the use of innovative geotextiles. The ecoLine relies on robust and durable reinforcement systems made from recycled PET, while the bioLine offers geotextiles made from renewable raw materials for temporary applications. Together, we create environmentally friendly and resource-saving construction projects that make a positive impact.



## Geotextiles made from recycled raw material

- 

Less CO<sub>2</sub> emissions by not using primary raw materials
- 

Conservation of resources through the use of recycled PET bottles
- 

PET recycled yarns with proven original fibre quality
- 

All ecoLine products are CE certified

### 100% original fibre quality made from 100% recycled PET

With **ecoLine**, we are the first manufacturer in the world to offer high-quality reinforcement solutions made from recycled PET with CE marking. This innovation promotes the circular economy and sustainable construction. The ecoLine product solutions are characterised by their high quality and have the same performance characteristics as the original products. The recycled yarns used by us have 'proven original fibre' quality. Sustainability and durability are perfectly combined.

## Geotextiles made from renewable raw materials

- 

Based on natural raw materials
- 

Biodegradable degradable products
- 

Robust for temporary applications

### Natural raw materials for temporary applications

**bioLine** stands for bio-based, biodegradable technical textiles for temporary applications. With SoilTain® DW bio, HUESKER is a pioneer in offering fully degradable dewatering products. The products meet all technical requirements and are efficient: after use, nature takes over the recycling, which often makes dismantling superfluous.



**BENEFITS**

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

# Fortrac®

## Immensely versatile solution for reinforced soil

Fortrac offers an all-round soil reinforcement solution. Four 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 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 high tensile stiffness allows the economical specification of lower strength values. Due to the alkali resistance of the raw material, Fortrac geogrids made of PVA are particularly economical to install, as local soils can be used even if they have extreme pH values or hydraulic binders such as cement or lime are used. 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 validates the reliability of the product.

**Approvals:** BAM, HPQ der DB AG, GfG Gütegemeinschaft Gabionen, BBA, NorGeoSpec, NTPER

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Material	Tensile strength(s)	Coating(s)	Function(s)
PET, rPET, PVA, Aramid	Up to 3.000 kN/m	Polymer	Reinforcement



Bridging of Sinkholes

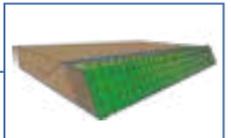


Steep Slopes/Retaining Structures



Steep Slopes/Retaining Structures

Now also available as BIM models



Click here for the BIM portal!



# Fortrac® Systems

## Efficient solutions for steep slopes and retaining structures

With systems made of Fortrac reinforced earth, you can build settlement-resistant steep slopes, slope stabilisation or embankment stabilisation, as well as retaining structures such as retaining walls or bridge abutments quickly, economically and at the same time in an ecologically sustainable manner. Fortrac Systems are modular and economical solutions for engineering structures with geogrids.



## Fortrac Systems Calculator

### Calculate geogrid-reinforced retaining walls quickly and easily

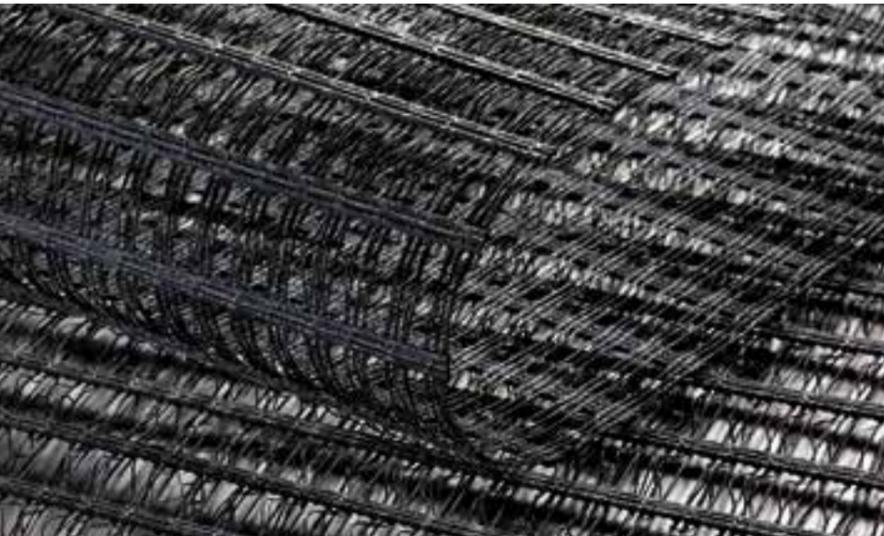
With our free design configurator, you can quickly and easily obtain an initial measurement of your geogrid-reinforced retaining wall and a cost indication for further detailed coordination with our experts and engineers.



On page 31 you will find direct access to the free Fortrac Systems Calculator.

Click here to go to our videos!





**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.

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



Dams and Dikes



Landfill Construction



Landscape Construction



**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 minimises 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 customised 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.

**Approvals:** RAL quality mark, EPD

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



Rehabilitation of Asphalt Pavements



Permanent Roads and Pavements



Rehabilitation of Concrete Pavements with Asphalt



**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 mobilisation of forces even at low strains

# Basetrac® Grid

## 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 polypropylene 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. This makes Basetrac Grid the safe, long-term solution for base course reinforcement. As a result, transport is minimised, which leads to a lower CO2 footprint on the construction project and reduced microplastic production.

**Approvals:** HPQ of DB AG, NorGeoSpec

 On page 31 you will find direct access to the free BaseCalculator. With the BaseCalculator you can easily find the right product for your application.

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



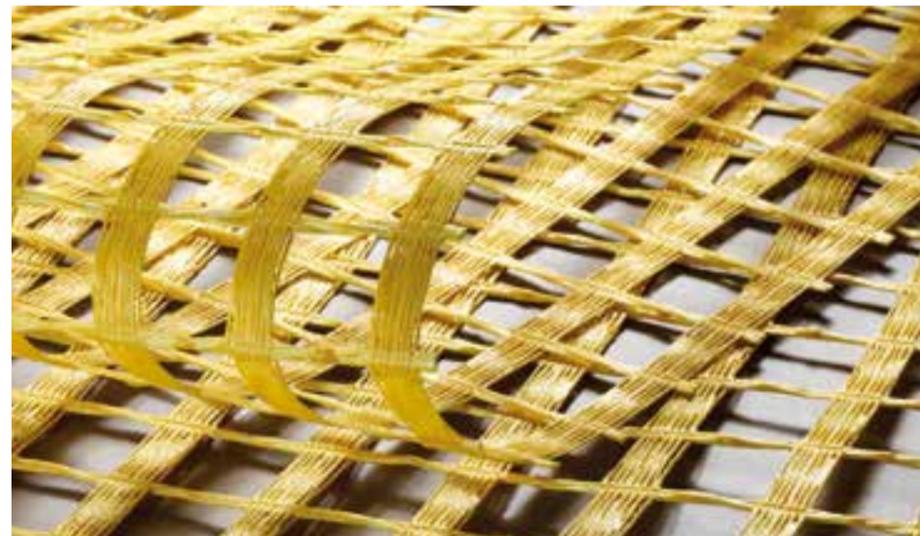
Temporary and Permanent Roads



Railways



Working Platforms



**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®

## 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.



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



Longwall Recovery, Highwall and Rib Support



**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 unique 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 quality 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 tensile stiffness coupled with low creep – the uniformly high tensile strength serving to minimise structural deformation.

**Approvals:** BBA, IVG, NORGeoSpec, EPD, NTPEP

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Material	Tensile strength(s)	Function(s)
PET, rPET	Uniaxial up to 2,500 kN/m; biaxial up to 1,000 kN/m	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 12,5
- Woven fabric sheet for reinforcement, separation and filtration

# Stabilenka® Xtreme

## Highest strength even under alkaline conditions

Stabilenka Xtreme consist of PVA and is acid- and alkali resistant for pH values between 2 and 13, allowing the use with all soil types, including even peat. Stabilenka Xtreme is 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 deformation and 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, the last word in reinforcement.

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



Embankments on Soft Soil



Sludge Lagoon Remediation



Bridging of Sinkholes



**BENEFITS**

- Cylindrical seamless reinforcement sleeve for uniform tensile strength and axial stiffness
- Robust foundations, even in extremely soft/liquefied soils and in earthquake regions
- 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 commonly used to construct GEC's.

Ringtrac columns are ideally suited for embankment foundations even in very low bearing soils, land reclamation and as a safe foundation system in earthquake areas – 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 (57 cm – 95 cm) 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 waterpermeable 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.



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



Geotextile Encased Columns (GEC)



**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

## Separation, filtration and stabilisation in a single product

Basetrac Woven is typically used to stabilise surfaces in road and pavement construction. The fine-meshed texture of Basetrac Woven enables it to fulfil a separation, filtration and reinforcement 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-stabilised soils.

For temporary applications, Basetrac Woven products of the bioLine can be used for temporary applications. Our engineers will be happy to advise you on the options for using degradable raw materials.

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



Temporary Roads



Permanent Roads and Pavements



**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

# HaTe® Nonwovens

## 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/m<sup>2</sup>. 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.

**Approvals:** BAM, BAW, ÖNORM

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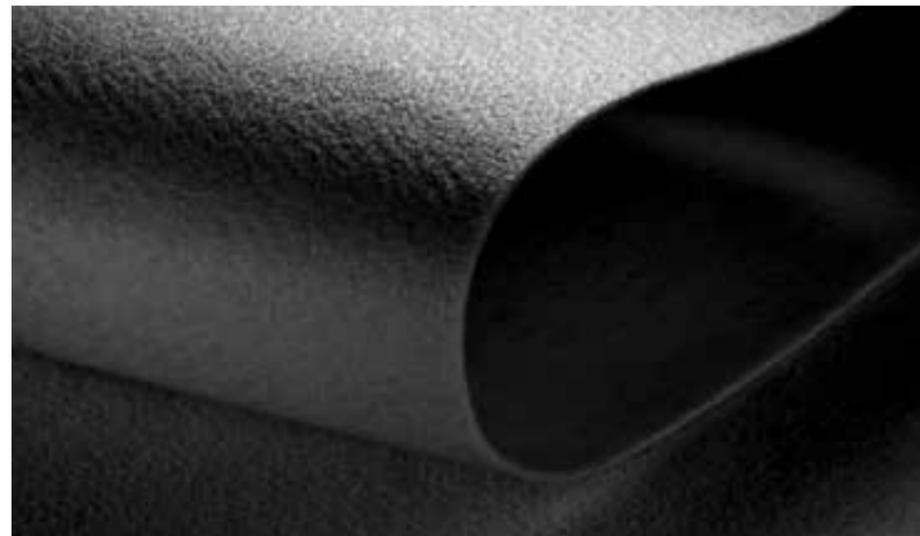
Material	Function(s)	Weights
PP, PET, PA, PEHD, PAN	Separation, Filtration, Protection	Up to 4,000 g/m <sup>2</sup> (optionally with scrim reinforcement)



Revetments



Landfill Construction



**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® Nonwoven

## Separation, filtration and stabilisation in a single product

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/m<sup>2</sup> 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  $E_{V2} > 35 \text{ MN/m}^2$ ) and complement the other products in the Basetrac range for base course applications.

**Approvals:** HPQ of DB AG, IVG

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Material	Function(s)	Grammage
PP, blended fibre	Separation, Filtration	Up to 350 g/m <sup>2</sup>



Permanent Roads and Pavements



Temporary Roads



**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 reinforcement.

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

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Material	Tensile strength(s)	Coating(s)	Function(s)
PP, PET, PVA	Biaxial up to 100 kN/m	Polymer	Reinforcement, Separation, Filtration



Temporary and Permanent Roads



Railways



Working Platforms



**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

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.

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Material	Tensile strength(s)	Function(s)
PVA, PET, PP (nonwoven)	Biaxial up to 100 kN/m	Reinforcement, Separation, Filtration



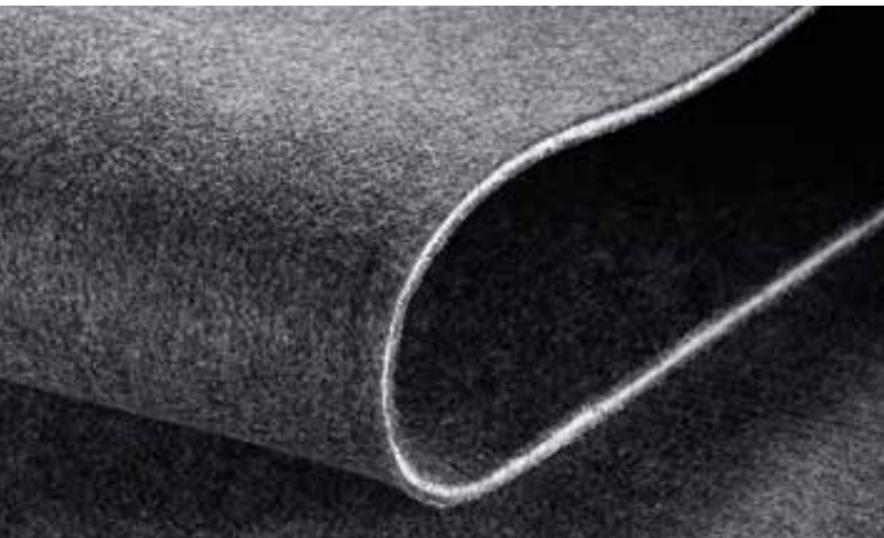
Sludge Lagoon Remediation



Railways



Permanent Roads and Pavements



**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

Tailor-made permeable contaminant barriers for nearly every application

Tektoseal Active is used in environmental engineering measures for groundwater protection, remediation, covering contaminated sediments and in landfill construction.

The active geocomposites are available in different product versions. The key component in each case is the active material used, which is selected to meet your specific challenge. The bond with the geotextile gives the active material a mechanical stability, which ensures that it is positionally stable and robust against external influences. Even if the relocation of contaminated material is not an option, Tektoseal Active is a reliable geosynthetic safeguarding solution. Tektoseal Active AS forms a barrier to petrochemical contaminants. A suitable agent for pollutant adsorption is Tektoseal Active AC with a core of activated carbon.

Our engineers will analyze your individual pollutant situation and then provide you with a solution that is literally tailor-made. In addition to rolls up to 5.10 m wide, we can also supply large panels that are precisely tailored to the conditions on site.

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Active layer	Top / bottom layer	Function(s)	Containments
Oil absorbing polymer, different types of activated carbon, Cation adsorber, Selective ion exchangers	Polypropylene (PP)/ Polyester (PET) woven or nonwoven	Pollutant absorption through, ion exchange or precipitation	Oil, NAPLs, Fuels, VOC, PAH, PCB, TBT, PFAS, Pb, Ni, Mg, As, U, e.g.



Runoff filtration



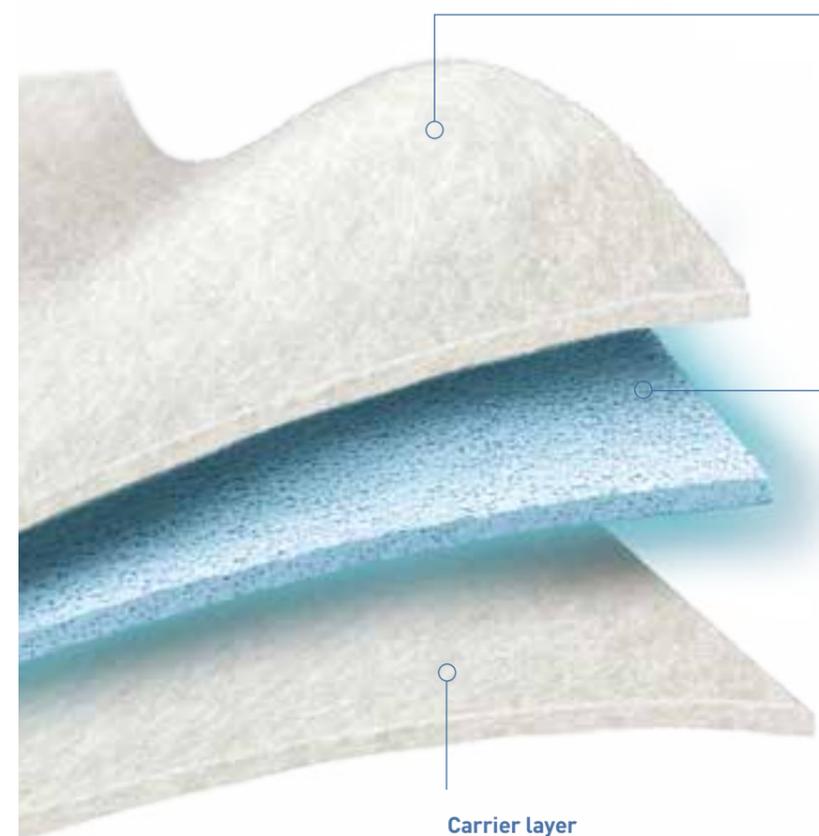
Soil capping



Landfill sealing

# Active environmental protection

With tailor-made pollutant barriers



**Cover layer**

A nonwoven or woven fabric made of polypropylene (PP) or polyester (PET), which serves as a stabiliser for the active material and as a protective layer against external influences. Raw material and basis weight are adapted to the specific requirements.

**Active layer**

The active layer is the heart of the Tektoseal Active products. It may contain the following substances, amongst others:

- Activated carbon
- PFAS selective ion exchanger with carbon
- Heavy metal binder
- Oil absorber

**Carrier layer**

The material of this layer can be varied according to the field of application to ensure the required strengths or protective properties. Possible materials are woven or nonwoven fabric, optionally with geogrids as reinforcement.

**For PFAS**

Highest performance for short and long chain PFAS



**For heavy metals**

Maximum performance with heavy metals and phosphates



**For organic pollutants**

Pollutant barrier for dissolved organic contaminants



**For oils and petrochemicals**

Preventive protection against contamination of oil, diesel and gasoline





- 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®

## 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 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.

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



Rehabilitation of Concrete Pavements



Permanent Roads and Pavements



- 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

## 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 minimises the odour emissions from the sludge.

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

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Material	Function(s)	Storage volume(s)	Circumference(s)
PP, renewable raw material	Filtration, Drainage, Containment	Up to 1,600 m <sup>3</sup>	Up to 28 m



Tube Dewatering



**BENEFITS**

- Low-cost solution as no core material needed
- Long-term protection against erosion
- Large-volume tubes create continuous barrier spanning long distances
- Rapid colonisation 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 colonised 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.

Click here to go to our videos!



Material	Function(s)	Types	Storage volume(s)
PP, PET	Reinforcement, Separation, Filtration, Containment, Protection	Bags, containers, tubes	0,3–700 m <sup>3</sup>



Breakwaters



Dams and Dikes



Bank Protection



## SoilTain Tubes – Container Systems

Sustainable erosion control system



**SoilTain Tubes**

Geotextile tubes made of high tensile fabrics for large-format heavyweight structures. Installed with a scour apron.



## SoilTain Bags

the Sand Containers for all situations



**SoilTain Bags Xtreme**

Extremely robust Sand Bags made of a two layer needle punched non-woven of 1,200 g/m<sup>2</sup> for permanently exposed revetments and structures.



**SoilTain Bags**

Sand Bags made of non-wovens or composites with mass per unit weight from 600 g/m<sup>2</sup> to 1,000 g/m<sup>2</sup>. For temporarily exposed or permanently covered structures made of small-format, flexible elements.





**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:
  - 6 cm – 60 cm internal thickness
  - 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 (6 cm - 60 cm), the maximisation 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.

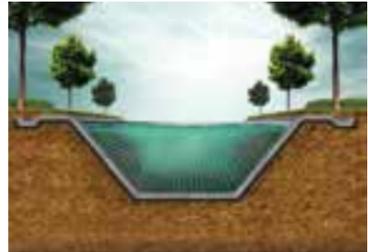
Given the product's 60-year-plus track record of success, you can rest assured that opting for Incomat is the right decision.



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



Bank Protection



Canals



Bed Protection



# Incomat® Pipeline Cover

Revolutionary pipe encasement system

Incomat Pipeline Cover (IPC) can be used wherever pipelines require protection against mechanical impacts or buoyancy uplift. The IPC system sets itself apart from concrete encasements installed with conventional formwork systems through its fast, efficient application.

Factory prefabrication of the geotextile formwork eliminates the need for any elaborate shuttering on site. The fact that the tailored units allow rapid assembly and optimise the concreting operation also helps to speed up the progress of the works. Furthermore, pipeline bends and varying pipe diameters can be readily accommodated by means of suitable planning and custom-manufacture.

**Geotextile formwork mattress**  
Modified Incomat mattress with factory-fitted industrial zips for rapid pipe encasement

**Vertical ties**  
Spacers; adaptable to project requirements; maximise dimensional stability of mattress, thus ensuring constant concrete cover

**Concrete fill**  
Fluid concrete; easy filling via factory-fitted filler necks

**Protective nonwoven (optional)**  
Optional incorporation of nonwoven as additional protective layer



Material	Function(s)	Length of individual units	Customised configuration
PE, PA, renewable raw material	Protection against external impacts, buoyancy and uplift	1 m to max. 5 m (concreting sections)	Mattress length/width/thickness, filler necks, possible factory prefabrication
<b>Environmental performance</b>	Classed as harmless under M Geok E 2016 (Guidance Paper on the Use of Geosynthetics in Earthworks for Roadbuilding Projects) and BBodSchV (German Federal Soil Protection and Contaminated Sites Ordinance) Tested to German guideline for hygienic assessment of elastomers in contact with drinking water (Elastomer Guideline)		



**BENEFITS**

- More landfill volume with less earthworks
- Better sealing than with conventional mineral methods
- High internal and external shear strength
- Fast construction process due to simple laying
- Durable material (over 100 years) and economical to install

# NaBento®

## Maximum security and performance

NaBento clay liners are our unique and sustainable waterproofing solutions for demanding construction projects. Our product portfolio includes NaBento clay liners which is supplied with calcium or sodium bentonite. The innovative special composite used as a top layer offers you maximum external shear strength through improved interaction with adjacent surfaces. This guarantees an increased level of safety and functionality on site.

NaBento clay liners compensate for up to four times more expansion at nominal load (up to 20%) than conventional mineral seals and are therefore very robust in the event of unplanned settlements. The optional use of calcium bentonite enables permanently low permittivity, as it is the only clay liner that is not subject to natural cation exchange. Straightforward installation saves you time on site.

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

Click here to access the brochure



Material	Coating	Bentonite weight	Water permeability k
PET (support geotextile), PP (carrier and cover geotextile), bentonite powder (sodium or calcium)	NaBento IR-N/IR-C: sand-rough surface	Up to 10 kg/m <sup>2</sup>	IR-N: 2-10-11 [m/s] IR-C: 6-10-11 [m/s]



Landfill sealing



Groundwater Protection



Dams and Dikes



**BENEFITS**

- Less earthworks and transportation
- Better sealing than with conventional mineral methods
- High shear strength due to precision needling
- Simple, low-dust installation for rapid construction progress
- Self-healing effect for unnoticed minor damage

# Tektoseal® Clay

## Easy to install, cost effective sealing

Tektoseal Clay is a mat with approximately 10 mm thickness and achieves better sealing effects than mineral seals. This saves on earthworks and transportation. The nonwoven material that's used ensures strong friction behaviour and allows installation on steep slopes (ratio 1:3). Compared to products with powdered bentonite, the incorporated granulated bentonite offers the advantage of low dust exposure and significantly better working conditions on site.

This also reduces the formation of a lubricating film on the surface in the event of moisture ingress. This makes installation easier, as does the roll width of 5.10 m, which enables quick installation with fewer 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 more than 70% montmorillonite content, automatically seals minor mechanical damage that may otherwise remain unnoticed, thereby enhancing long-term reliability. For landfill construction, we also offer Tektoseal Clay with a LAGA suitability assessment and always with additional self-sealing edges.

Tektoseal is the cost-effective sealing solution for your projects.

Material	Bentonite weight	Water permeability k	Function
PP (non-woven and woven fabric) / Bentonite granules (sodium)	Up to 6 kg/m <sup>2</sup>	3-10-11 [m/s]	Sealing



Water reservoirs



Groundwater Protection



Landfill Construction

# HUESKER services

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

## Engineering services

### Technical consulting

We will recommend the appropriate product types for your specific requirements.

### Technical design

Our engineers assist design practices by performing verifiable design calculations in accordance with international codes of practice.

### Project-specific placement plans

We will prepare installation and placing recommendations plus installation diagrams.

### International knowledge transfer

Best-practice solutions and techniques from our global network.

## Documents

### Certificates and approvals

Our products have numerous certifications and approvals that are issued, for example, by BAM, BAW, BBA, EBA, HPQ of DB AG und LAGA, IVG und SVG, depending on the product type.

### Tender documents

We would be happy to provide you with proposals for your specification texts.

### Technical guidelines

Adapted technical installation instructions will help you to install our products correctly.

## Product services

### Custom-designed project solutions

We will partner with you in developing custom-fabricated products to meet your particular requirements.

### Alternative solutions

We will propose alternative design solutions as well as recommendations for adjustments and optimisations.

## On-The-Spot

### On-site instruction

Where required, our application technicians can offer installation assistance related to the specifics of product installation.

### Installation aids

We can offer you practical installation aids to facilitate the application of our products.

### Training

Product and application specific instruction.



# Our software solutions

Our online software solutions guides you easily to the optimal solution for your individual construction project. In just a few clicks, you will receive suggestions for selecting the right geosynthetic material and an initial calculation. The software solutions are available to you completely free of charge and without the need for registration.

At the end of a calculation, you will receive a PDF document with all relevant parameters, which you can save and continue to use. Feel free to use the document or contact us directly. Together with our experienced engineers, we will find further individual solutions for your project.

## Fortrac Systems Calculator

With our free design configurator, you can quickly and easily obtain an initial measurement of your geogrid-reinforced retaining wall and a cost indication for further detailed coordination with our experts and engineers.



Scan and discover the right product solution!

## BaseCalculator

The BaseCalculator will quickly calculate the required base course thickness for traffic areas subject to normal loads and, after only a few clicks, provide you with a recommendation as to the most suitable geosynthetic product.



Scan and discover the right product solution!

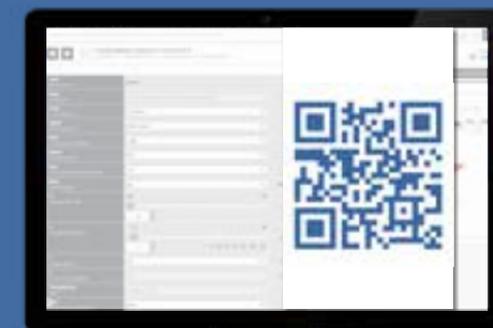
## RingtracS

RingtracS is a design software application purpose-developed by HUESKER's engineers. It ensures the reliable project-specific design of Ringtrac system solutions with due allowance for all relevant parameters.



## BIM

BIM (Building Information Modeling) is a method for the digital planning of construction projects. By providing various BIM models, HUESKER aims to provide you with the optimum basis for the efficient design of your projects.



Scan and discover our BIM models!

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