Fortrac®

Fortrac 3D®

HaTelit®

Stabilenka®

Robutec®

Comtrac®

Fornit®

Duogrid®

Ringtrac®

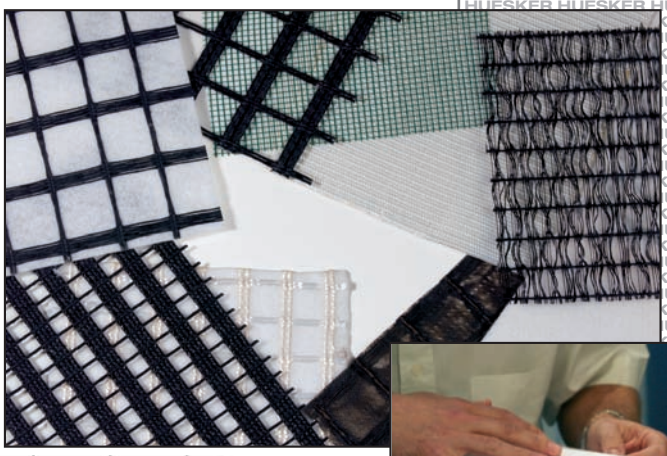
NaBento®

Incomat®

HaTe®

SoilTain®

Geosynthetics Product Overview



HUESKER

Ideen. Ingenieure. Innovationen.

Company profile

HUESKER has over 150 years of tradition as a textile manufacturer.
That means over 150 years of quality, innovation and expertise.
We have applied the same high standards for over 50 years to the development and manufacture of geosynthetics and technical textiles.

HUESKER geosynthetics find most use in the construction industry, mainly in civil engineering. Further product ranges include technical textiles for industrial applications and agricultural textiles.

HUESKER was first formed as H. & J. Huesker & Co. in December 1861 in Gescher, Germany. Production of cotton fabrics began in 1863 in the newly built factory. The company grew fast, reflecting the rapid development of industry during the "Founding Years" of the modern German state, and by 1867 was operating 200 looms.

In 1958 HUESKER recognised the excellent future for synthetic textiles and started to manufacture filter fabrics and sandbags.

Continued expansion of the product range led to the establishment of HUESKER Synthetic as an independent company in 1973.

HUESKER Synthetic GmbH is an independent, medium-sized company.
Its headquarters and production facilities are still in Germany at Gescher, Westphalia.
Today, HUESKER is one of the world's leading manufacturers of high quality geosynthetics and has an extended sales network of more than 10 subsidiaries and numerous marketing partners.

HUESKER offers a wide, market-oriented range of synthetic geogrids, woven fabrics, knitted fabrics, composites, clay liners and nonwovens for use by the construction industry.

Raw materials such as polyester, polyvinyl alcohol, polypropylene, aramide, polyethylene and polyamide are processed on our modern, efficient production lines.

Where project conditions or engineering requirements demand, we can also produce customised, made-to-measure geosynthetics that offer technically optimised, cost-effective solutions; without compromise and for various functions, including:

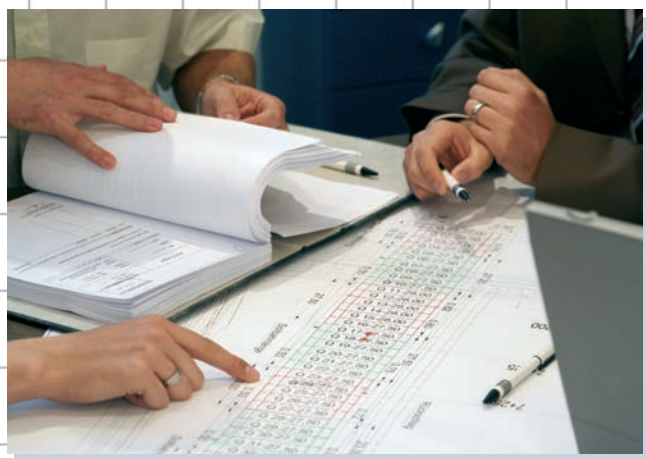
- Reinforcement
- Separation
- Filtration
- Sealing
- Drainage
- Protection
- Containment

Our products are used in the following areas:

- Earthworks and foundations
- Roads
- Railways
- Airports
- Hydraulic engineering
- Landfill
- Industrial and contaminated land rehabilitation
- Asphalt reinforcement

Demanding engineering solutions

We focus on our customers and their requirements, which we are dedicated to satisfying with great flexibility and skill. Our wealth of know-how is at the service of our customers and is continuously being expanded with new products and services.



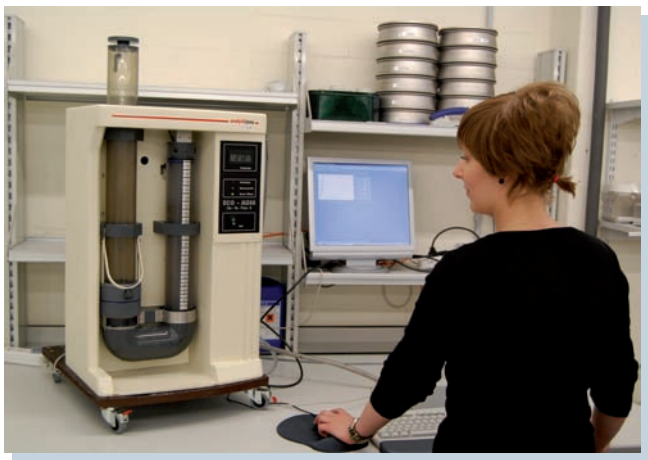
This means HUESKER is a project partner who is able to meet the highest requirements at any stage in a project - from investment and demand planning right up to implementation.

HUESKER engineering begins with providing the customer with initial advice and ends with the realisation of the project on site.

Thus we are able to provide individual and safe project solutions that are both ecologically and economically sound.

Experience

HUESKER products are the result of decades of experience in the development and manufacture of geosynthetics and close, intensive cooperation with customers, consulting engineers and research and testing institutions.
The specified product properties are based on key parameters that can be tested and verified in accordance with EN and ISO standards.
HUESKER Synthetic GmbH is certified in accordance with DIN EN ISO 9001 for the development, manufacture, sales and application engineering of geosynthetics and technical textiles.
Furthermore, our in-house testing laboratory is accredited by Deutsches Akkreditierungssystem Prüfwesen (DAP) in accordance with DIN EN ISO/IEC 17025.

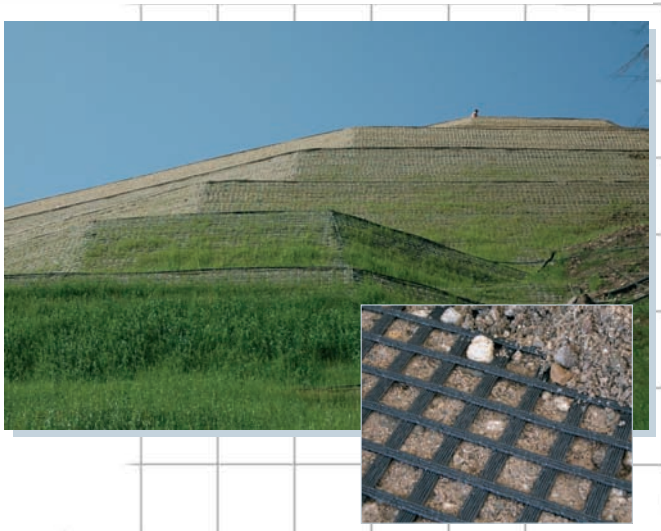


The following list gives an overview of our standard products.
Please contact us if you would like detailed information, or would like to discuss a particular product.

Your HUESKER - Team

Fortrac®

Fortrac® - soil reinforcement geogrid

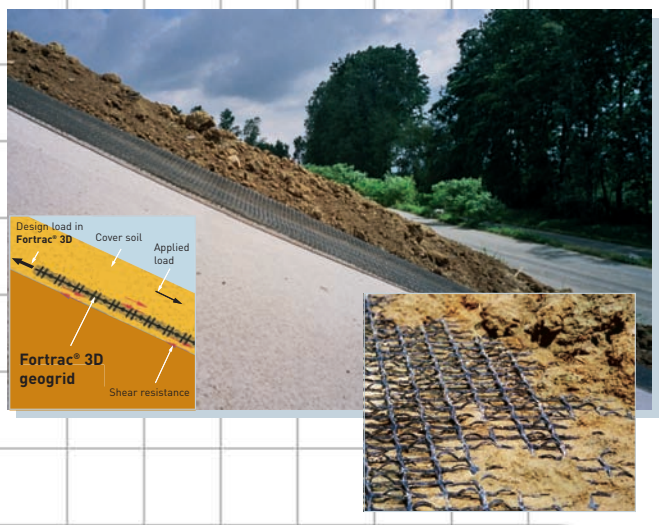


Fortrac® geogrids are manufactured from high-modulus, low-creep synthetic raw materials encapsulated in a protective polymer coating. The special techniques used to manufacture **Fortrac®** geogrid provide it with high stability at the rib junctions. High-modulus polyester (PET) has been our standard for more than 20 years. Special project requirements have led to the use of advanced polymers.

Fortrac® can be supplied in various mesh sizes and in standard strengths of between 20 and 400 kN/m. Strengths over 2000 kN/m can be supplied for special applications. The product width of five metres reduces overlaps to a minimum.
Special sizes can be manufactured quickly on request.

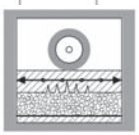
Fortrac 3D®

Fortrac 3D® - reinforcement grid with soil erosion protection



Fortrac 3D® is a flexible, three-dimensional reinforcement grid made from high-strength, low-creep polyester with additional soil erosion protection. The geogrid is given a special polymer coating to protect it from UV radiation and mechanical damage. **Fortrac 3D®** can be designed for the desired project-specific period of use based on its known long-term behaviour.
Fortrac 3D® is available in several standard variants, which allows you to select the one most suitable and hence most efficient for your project.

HaTelit®



HaTelit® for reinforcing asphalt layers

HaTelit® is a flexible reinforcement grid made from high-strength, low-creep polyester yarn, which is given a bituminous coating (min. bitumen content 60%) to ensure a good bond with the asphalt layers.
HaTelit® C40/17 incorporates an additional nonwoven, which makes installation quicker, easier and more cost-effective, without detrimentally affecting the bond between the various layers. A 5.0 m product width avoids superfluous overlapping. Special sizes can be manufactured quickly on request. This asphalt layer reinforcement has been successfully tried and tested in over 40 years of practical use. Installed correctly, a carriageway reinforced with **HaTelit®** remains defect-free for much longer than a conventionally resurfaced road pavement.

Stabilenka®

Stabilenka®- woven for the reinforcement and separation of soil layers

A high-strength, low-creep polyester woven fabric, **Stabilenka®** can mobilise high, long-term tensile forces at low elongations. It is therefore suitable for reinforcing soils in many different applications where there are tight limits on allowable deformations.

Stabilenka® can also act as a separation layer. Over 30 years of records of previous projects and monitored results are available. Main applications: Embankments on soft soils, capping over slugde lagoons, sinkhole protection, load distribution over piles or similar supporting members and in the construction of steepened earthworks slopes.

Robutec®

Robutec® - woven for reinforcement and separation to satisfy the highest requirements

Robutec® is an extremely high-modulus, low-creep and alkali-resistant reinforcing woven fabric made from polyvinyl alcohol (PVA).

Robutec® is used as reinforcement in soils in circumstances where conventional products or raw materials are not capable of fulfilling complex project-specific requirements. Typical applications include sites with demanding geotechnical conditions where deformation limits are crucial. If the reinforcement is designed for very high or low pH environments, a particularly resistant raw material is called for, such as PVA.

Comtrac®

Comtrac®- geocomposites for soil reinforcement, separation and filtration

Manufactured with a mechanically attached nonwoven, **Comtrac®** combines the functions of reinforcement, separation and filtration. An innovative manufacturing process achieves tensile strengths of up to 2000 kN/m, which opens new perspectives to the engineer in the design and selection of geosynthetics.

Fornit®


Fornit®- geogrid for reinforcing road base and subbase layers

Fornit® is a typical HUESKER high strength geogrid made from quality polypropylene and is used for reinforcing loadbearing aggregate layers.
The flexibility of **Fornit®** ensures a good interlock between the geogrid and the loadbearing layer. The geogrid confines the aggregate base layer and reinforces it against short-term, dynamic loads, and is effective immediately after installation.
The 5.0 m product width avoids superfluous overlapping.

Duogrid®



Duogrid® for soil reinforcement, separation and filtration

The **Duogrid®** geocomposite consists of the proven **Fornit®** geogrid, which acts as reinforcement, and an integral nonwoven, which provides the separation and filtration functions.
Duogrid® provides reinforcement, separation and filtration functions mainly in circumstances where low bearing capacity foundation soils predominate, e.g. under site access roads, transport routes and working platforms.
Duogrid® is extremely quick and easy to lay, which keeps installation costs low. The 5.0 m product width ensures overlapping is kept to a minimum.

Ringtrac®

Ringtrac®- woven sleeves for the reinforcement of loadbearing aggregate columns and the containment of soils

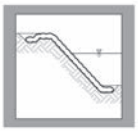
Ringtrac® woven sleeves can be used to create vertical, pile-like, geotextile-encased columns of sand or gravel, an efficient foundation system for embankments on very low bearing capacity soils. The high-strength **Ringtrac®** encasement sleeves allow you to form columns even in very weak soils. These fabric sleeves are manufactured in diameters up to 1 m to suit your specific project requirements using a circular loom. This process eliminates weak points and ensures uniform tensile stress/strain properties around the ring.

NaBento®

NaBento®- clay liner with numerous sealing applications

NaBento® is a technically safer and more economic replacement for conventional clay seals. The fields of application are diverse: Surface sealing of landfills, construction and refurbishment of flood protection dikes, protection of groundwater sources during the construction of roads through water conservation areas, sealing of settlement lagoons and rainwater retention basins. Either sodium or calcium bentonite is enclosed and protected from erosion in the laminated composite by support and backing layers. The choice of bentonites allows the product to fulfil different project requirements.
In combination with a special coating to give the surface texture a sandy roughness, **NaBento®** can be used on higher and steeper earthworks slopes. The composite is sewn together to achieve the highest internal shear strength.

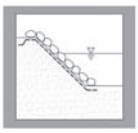
Incomat®




Incomat® - high strength double woven for stabilising embankments and foundations in hydraulic engineering works

Incomat® consists of two high-strength polyamide and/or polyethylene woven layers joined together to form a flexible mould which can be filled with concrete, mortar, sand or any other pumpable material.
Incomat® is a cost-effective, reliable and technically simple erosion protection system. It can be easily installed above or below water. HUESKER manufactures two variants of **Incomat®** mattresses for different applications: Permeable flexible mattresses and impermeable mattresses.

HaTe®- nonwoven and reinforced nonwoven

HaTe®- nonwoven and reinforced nonwoven for separation, filtration, drainage and protection

HaTe®-nonwovens are used in earthworks and foundations, roads, railways, tunnels, hydraulic engineering and landfill, where they perform important functions such as separation, filtration, protection and drainage.
Different raw materials are used depending on the engineering requirements. The product can be manufactured in various lengths and widths and made up to suit site logistics.
Needle punched wovens and nonwovens creates reinforced nonwovens, which are designed for use in landfills and tunnels, where they provide the clay liners with long-term protection.

SoilTain®

SoilTain®- systems for hydraulic engineering and dewatering

SoilTain® systems for coastal or riverine protection are containment systems made of specialised geosynthetics which prevent soil from being eroded by waves or currents.
For example: **SoilTain® Tubes** can be integraded as part of a structure or they may replace the complete structure like artificial dunes, artificial reefs, dykes, breakwaters or groynes.

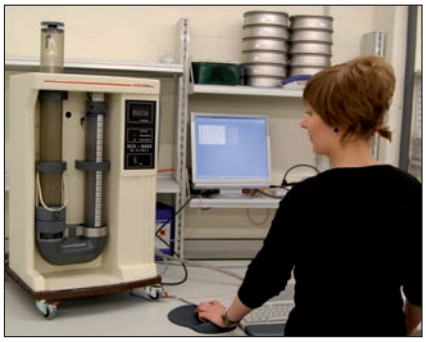
The **SoilTain® Dewatering Tube** is a containment system designed for dewatering a wide variety of sludge types. Gravimetric drainage of the sludge is accompanied by a volume reduction.

SoilTain® Dewatering Tubes can be applied where all kinds of dredged materials and sludges have to be dewatered and/or contaminates encapsulated.

This review of the product range cannot be comprehensive and can only provide you with an impression of the potential. If you require more detailed information or you would like advice concerning your specific requirements, please do not hesitate to contact us.

Your HUESKER - Team

www.HUESKER.com



HUESKER Synthetic GmbH is certified by:

HUESKER offers a wide range of technically demanding solutions relying on our many years' experience. Our solutions are economical, reliable and up-to-date and used in:

Earthworks and foundation engineering, landfill construction, hydraulic engineering, road construction

Technical assistance, planning, support - worldwide

Reliable and advanced techniques characterise our products in many applications:

Fortrac® – a flexible, high modulus and low-creep geogrid for soil reinforcement

Fortrac 3D® – a flexible, three-dimensional reinforcement grid with erosion protection

HaTelit® – a flexible, high-modulus and temperature resistant grid for asphalt reinforcement

Stabilenka® – a high-modulus polyester woven for reinforcement and separation of soils

Robutec® – a very high-modulus and alkali-resistant woven for reinforcement and separation of soils

Fornit® – a biaxial geogrid for subbase reinforcement

Comtrac® – a geocomposite for reinforcement, separation and filtration of soils

Duogrid® – a geocomposite made of biaxial high-modulus, flexible geogrid and a nonwoven

NaBento® – geosynthetic clay liner for sealing

Incomat® – a concrete- or sand-mat for sealing and erosion control

Ringtrac® – geotextile tube for reinforcement and soil containment

HaTe® – wovens and nonwovens for separation, filtration, drainage and protection

SoilTain® – systems for hydraulic engineering and dewatering

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HUESKER Synthetic GmbH

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