

# TIPPTEX®

100  
years  
durability



## TIPPTEX®

NONWOVEN GEOTEXTILES

Supporting successful projects

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# Tiptex®

**Tiptex is a BontexGeo product brand of geosynthetics which offers a wide range of needle punched nonwoven geotextiles produced from polypropylene. Tiptex products are widely used in Civil Engineering projects, such as road construction, waste management and hydraulic engineering.**

Our extensive range of products is designed to offer optimal hydraulic and mechanical performance to meet the needs of individual projects or applications. Our state-of-the-art equipment allows us to supply weights up to 1500 g/m<sup>2</sup> and widths up to 6.5m.

With Tiptex, BontexGeo is a reliable supplier of a large range of high-quality geotextiles, available for on-time delivery.

# Quality and Certification

BontexGeo is committed to produce materials that meet high quality standards at a constant level. In order to achieve this, quality is an integral part of all processes related to the production of Tiptex geotextiles.





All our manufacturing sites are equipped with fully operational on-site quality control labs. The labs are equipped with state-of-the-art equipment to allow testing of our Tiptex geotextiles according to the relevant international test standards (EN, ISO, ASTM). All test equipment undergoes regular preventive maintenance and calibration to ensure accurate test results.

Our commitment to quality already starts with the purchase of raw materials, as each supplier and raw material needs to be pre-approved on the basis of trials and compliance with our requirements before actual supply starts. For each delivery of raw material, a certificate of analysis is requested and reviewed to ensure product conformity.

Throughout our actual production process, a multitude of production parameters are monitored in order to optimize our production process and minimize the risk of a non-conformity at a later stage in the production chain. Our intermediate products are subjected to regular testing by our laboratories.

At the end of our production chain, the finished product is fully tested to ensure compliance with the defined and declared product specifications. Should it occur that a product – intermediate or finished – fails to meet the specifications, this product will be clearly identified as non-conforming material and barred from further sale as first quality.

All our geotextiles are packed and stored to ensure minimal damage during handling and storage. Measures to protect the products from degradation through UV, such as UV stable packaging, are also taken. Next to the constant quality control of our products and production, systems are in place to ensure a full traceability from the finished product back to the raw materials, providing access to quality data, production information and reports related to the related processes and materials.

### ISO certification

The quality management systems of BontexGeo are certified according to ISO 9001, in some cases already certified for over 25 years. The Environmental management systems of BontexGeo are certified according to ISO 14001. The compliance of these management systems to the ISO standards are checked by external notified bodies at least every year.

### CE marking

All Tiptex manufacturing sites have obtained approval for CE marking of geosynthetics. For geotextiles the control is performed based on Regulation (EU) 305/2011, also known as the Construction Products Regulation (CPR), laying down the conditions for the placing on the market of construction products (including geosynthetics).

### Product certification

Next to the above mentioned management system certificates, BontexGeo has obtained several product certificates for its geotextiles, in order to fulfil requirements specific countries might lay down for geotextiles.

All these product certificates require a regular assessment of the facilities and systems and/or 3rd party compliance testing of Tiptex geotextiles. Some of the certificates that are available for Tiptex geotextiles:\*

- Asqual (France)
- IVG (Germany)
- HPQ (Germany)
- Norgeospec (Finland, Sweden, Norway and Estonia)

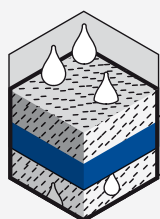
### Documentation

On request, Tiptex geotextiles can be provided with test reports to present the result of our quality control. Copies of certificates for relevant products or production locations can also be provided.

\* Not all our geotextiles are covered by these certificates. Please contact your BontexGeo representative for further details.

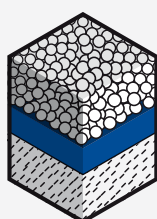
# The use of Geotextiles

Tiptex geotextiles are widely used for filtration, separation, protection, drainage and erosion control. They are included in infrastructural projects such as roads and railways, coasts, industrial foundations, landfills and drainage blankets.



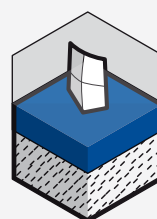
### Filtration

The use of a geotextile in filter applications is one of the best known and most used functions of geotextiles. The geotextile acts as a permeable layer, allowing water to flow normal to the plane while preventing the movement of fine soil particles through the geotextile.



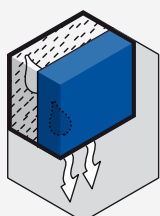
### Separation

Separation is the process of preventing two dissimilar materials from mixing. In this function, a geotextile is most often required to prevent the undesirable mixing of fill and natural soils or of two different types of fill.



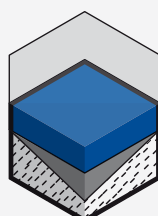
### Protection

A geotextile can be used as a protective layer against mechanical damage during installation and after the completion of a particular construction project. It will help prevent the puncturing of geomembranes used in constructions such as tunnels, landfills or reservoirs.



### Drainage

When functioning as a drain, a geotextile acts as a conduit for the movement of liquids or gasses in the plane of the geotextile. Relatively thick nonwoven geotextiles are the products most commonly used, due to the higher water flow capacity in the plane.



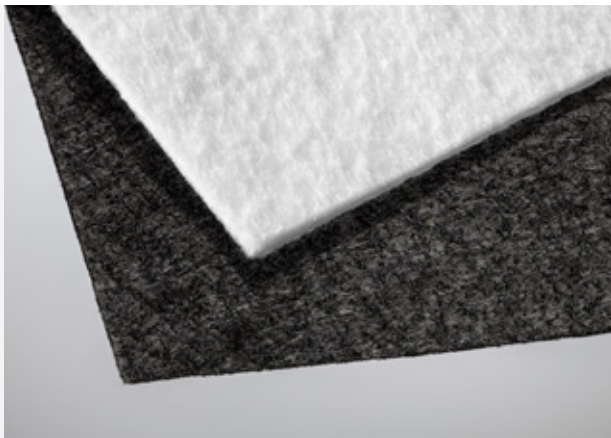
### Erosion control

In erosion control, the geotextile protects soil surfaces from the tractive forces of moving water or wind and rainfall erosion.

# Tipptex BS and NS

## Treated nonwoven geotextiles for separation and filtration

**Tipptex BS and NS are a wide range of needle punched and thermally treated nonwoven geotextiles, designed to combine high water flow characteristics with excellent soil retaining properties. BS and NS geotextiles are designed for use in many civil engineering applications, such as drainage blankets, road construction, hard standings and railways.**



The hydraulic properties of Tipptex BS and NS nonwovens stimulate the build-up of a natural soil filter in the adjoining soil to ensure long term filtration stability.

When used in for example road constructions and parking lots, Tipptex BS and NS geotextiles result in longer lifetimes of these constructions, as they reduced rutting and prevent the mixing of good aggregate with lower quality soil. As such, BS and NS geotextiles also help to reduce the needed quantity of high-cost aggregates, therefore lowering the total cost of the construction.

### Technical details

Tipptex BS and NS nonwovens are a range of 100% virgin polypropylene needle punched and thermally bonded nonwoven staple fibre geotextiles.

- CBR puncture strengths up to 18 kN
- Uniform tensile strengths in all directions throughout the length and width of every roll up to 80 kN per metre width
- Available in black (BS) and white (NS)
- Available in widths up to 6.5 m
- Standard roll length 100 m or 50 m for heavy types





#### Functions

- Separation
- Filtration

#### Application areas

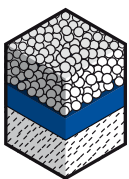
- Railways
- New roadways
- Site access roads
- French drains
- Granular drainage blankets
- Hardstandings

- Car parks
- Industrial units

#### Features and benefits

- Durability of minimal 100 years
- Designed to offer optimum performance per unit weight
- Thermal and mechanical bonding process ensures superior performance at lower weight and lower thickness resulting in a lower transport cost
- Combination of high water flows normal to the plane and very good soil retaining properties
- Optimal use of transport possible due to high product width
- Excellent mechanical robustness and hydraulic properties
- Significant reduction of carbon footprint and costs compared to traditional methods

#### Product functions



SEPARATION



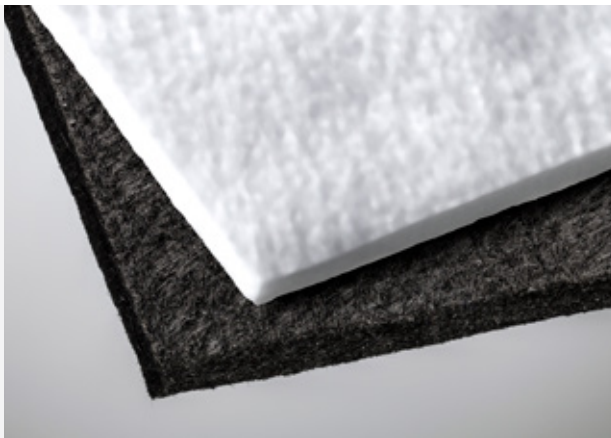
FILTRATION



# Tipptex H-Protec

## Non-treated nonwoven geotextile for protection

**Tipptex H-Protec is a range of needlepunched nonwoven geotextiles designed to offer greater thickness and puncture resistance compared to standard geotextiles. They are ideal for protection applications and projects where a high robustness is needed to withstand severe installation conditions.**



A typical application is to use it in, for example, embankments along rivers and canals and in coastal engineering applications, where installing the geotextile as a filter fabric beneath a rock armour layer will help counter erosion control problems. Next to that, the thick heavy duty H-Protec geotextiles are often used as a protection layer for waterproofing systems in waste management sites and reservoirs.

### Technical details

- Tensile strengths up to 100 kN/m combined with elongations of 80% or higher, resulting in high energy index values
- Available in weights from 300 to 1500 g/m<sup>2</sup>
- Fabric thicknesses up to 10 mm
- CBR puncture values up to 20 kN
- Produced using 100% virgin polypropylene staple fibres
- Project specific dimensions possible





#### Functions

- Protection
- Erosion control
- Drainage

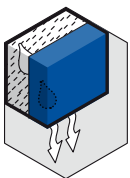
#### Application areas

- Pipeline protection
- Coasts
- Landfills

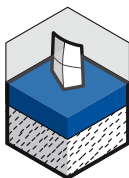
#### Features and benefits

- Durability of minimal 100 years
- High mechanical robustness
- Good cushion resistance combined with high elongation
- High resistance to puncture and abrasion
- Great water permeability combined with excellent filtration
- Can be used as a drainage layer, due to the high thickness and the resulting higher in-plane water flows compared to standard nonwoven geotextile
- Significant reduction of carbon footprint and costs compared to traditional methods

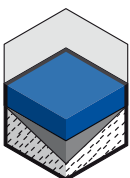
#### Product functions



DRAINAGE



PROTECTION



EROSION CONTROL





# Supporting successful projects



## Landfill construction in Tatabánya

### Country

Hungary

### Products

Tipptex B60, Tipptex BS16

**The Tatabánya Waste Treatment Centre was built within the framework of the „Danube-Vértes Köze Regional Waste Management Program”. This project included a new landfill construction with two cassettes.**

### Challenge

During design and construction of the two cassettes with 66.500 m<sup>2</sup> landfill space in all, regulations related to landfill and waste dumping of the Ministry of Water and Environment had to be considered. Moreover, the most economical and also technically suitable solution had to be chosen. The most appropriate geophysical monitoring system, sealing and drainage layers had to be built.

### Solution

Installing Tipptex nonwoven geotextiles in combination with a geomembrane and a drainage geocomposite meant a cost efficient and regulation compliant solution for creating drainage, separation and protection layers:

- Tipptex B60 1200 g/m<sup>2</sup> unit weight nonwoven geotextile protects the 2,5 mm thick geomembrane

- Tipptex BS16 needle punched and thermally bonded geotextile for separation and filtration
- Drainage composite for drainage
- Geomembrane liner

Tipptex nonwoven geotextiles are produced with the latest punching and thermally bonding technologies which, besides consistent areal density, result in significantly better parameters than other products on the market. With a mass per unit area of 1200 g/m<sup>2</sup> we can reach 18 kN static puncture resistance and 80 kN/m tensile strength; With a mass per unit area of 200 g/m<sup>2</sup> we can obtain 2,8 kN static puncture resistance and 16 kN tensile strength.

Our production capabilities allow us to produce even a 1200 g/m<sup>2</sup> nonwoven in one production run, resulting in a more cost-efficient solution in comparison to combining two lower weight products.

Combining Tipptex nonwoven with a drainage composite resulted in the design and construction of a long time reliable, high performance, cost efficient sealing and draining system.



## Railway rehabilitation 4<sup>th</sup> Pan-European Corridor

### Country

Romania

### Products

TippTex BS12W, TippTex BS20, TippTex BS46

**The 4th Pan-European Corridor runs between Germany and Greece/Romania/Turkey and is part of the Pan-European corridors that improve the connectivity within Europe. Rehabilitation of these railway structures improves and ensures long term stable and safe rail traffic.**

### Challenge

The rehabilitation of the infrastructure was performed to achieve good technical conditions for trains travelling with speeds up to 160 km/h across this Pan-European Corridor and to ensure a high level of safety for the rail traffic. One issue to tackle was the pumping effect: fine particles moving upwards into the ballast caused by trains moving across the rail which leads to faster deterioration of the support.

### Solution

The introduction of TippTex BS nonwoven into the construction as a separation and filtration layer between the subgrade and the subbase prevents the movement of soil particles into the subbase, therefore minimizing the risk of instability caused by the pumping effect and increasing the lifetime of the structure while lowering the maintenance cost.

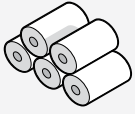
In total over 2.000.000 m<sup>2</sup> of BS nonwoven for the project 'Rehabilitation of Curtici-Simeria Frontier Railway' in Romania were supplied, making it one of the biggest projects we have done up until now. Three critical parameters to bring this project to a good end were met:

- Meet the requirements for and obtain the right Railway certification
- Deliver a product with very strong specifications
- Show reliability in terms of timely delivery of large volumes

# Geotextiles installation

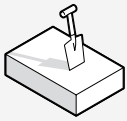
The following information is offered in good faith to assist end users with the installation of Tiptex geotextiles. As installation damage is one of the key factors that affects the integrity of the installed product, it is recommended that the following guidelines be adhered to as closely as possible.





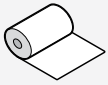
### Storage advice

The product should be stacked safely in a secure location until ready for use. The protective packing should not be removed until the product is required for use. For goods delivered with no outer packing a sacrificial layer of product should be removed and disposed of. Should product then be left uncovered then temporary exposure shall not exceed the declared time in the declaration of performance of the product, acc. to the EN 12224 standard.



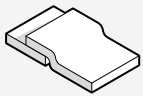
### Subgrade preparation

It is possible to lay the geotextile directly on undisturbed vegetation e.g. grasses and reeds should levels so permit. Any plant vegetation such as bushes or shrubs, as well as large rocks or other similar obstacles must first be removed. All voids, wheel ruts or other deep depressions require to be either filled or leveled out to provide a smooth surface.



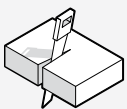
### Product installation

The geotextile should be rolled out and allowed to follow the contours of the land. It should be kept as taut as possible in an effort to minimize folds but not stretched so that it spans over any hollows. Small deposits of fill material may be required across the geotextile surface to hold it in place until fill placement commences. No vehicle should traffic directly on the geotextile surface at any time.



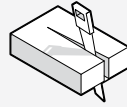
### Product continuity

The simplest and quickest method of ensuring product continuity is to overlap adjacent layers. Rolls placed side by side should have a minimum overlap of 300 mm whilst length on length should have a minimum overlap of 600 mm. Over soft or uneven soils these overlaps may require to be increased. Please contact our office for further advice. Should special circumstances identify a need for a mechanical joint then further details may be obtained from our office.



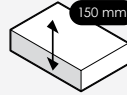
### Cutting to width

Should the geotextile width have to be reduced then the product may be cut down whilst still in a roll format. Nonwoven products may be cut with a hand or power saw. The method may to a small degree fuse the roll end making the product slightly more difficult to unwind.



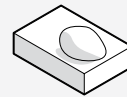
### Cutting to length

Product may be cut to length using either a sharp blade or scissors.



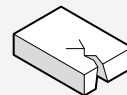
### Placement of cover fill

Fill material should be end tipped at either the edge of the geotextile or on top of already placed fill before being spread to the required depth using a tracked machine. A minimum fill layer thickness over the geotextile of 150 mm is recommended prior to any trafficking or compaction.



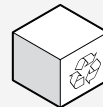
### Fill restrictions

The choice of fill placed directly on the geotextile's surface can greatly affect the amount of damage caused to it during installation. A simple piece of guidance to help minimize this damage is to use a maximum stone size no greater than half the fill layer thickness e.g. if fill is being placed and compacted in 150 mm layers then the maximum stone size should be no greater than 75 mm. This prevents any stone in direct contact with the compactor at the surface to also come in contact with the geotextile. Another option is to place a 50 mm thick sacrificial sand blanket on the geotextile prior to main fill placement.



### Installation damage

Should the geotextile be damaged during fill placement then the surrounding fill material should be removed and a second geotextile layer placed over the damaged area. A minimum overlap of 1500 mm should be provided between the edge of the damaged area and the outside edge of the patch. Fill placement should then continue as before.



### Disposal of waste product

A small quantity of waste is generated with each roll of geotextile product used. This can include packing, a plastic or cardboard roll center and possibly product offcuts. We would ask that you please give consideration to the environment when disposing of this material.



The Tiptex product range is manufactured by Bontexgeo. Bontexgeo is one of the leading suppliers in geotextiles with manufacturing locations in Europe. The company is selling into more than 60 countries worldwide. Bontexgeo has a long history, dating back to 1925, in the development and production of technical textiles and has a proven track record of over 30 years in the supply of geotextiles. Bontexgeo develops, produces and sells high quality nonwovens and wovens made from different polymers,

which help our customers to be successful in their projects. Typical applications include erosion control in coastal protection, road construction projects, membrane protection in landfills and drainage systems.

The quality systems of Bontexgeo facilities are certified according to ISO 9001. Certificates are available upon request.

#### CONTACT US FOR A FREE SAMPLE KIT OR TO DISCUSS YOUR SPECIFIC REQUIREMENTS

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