

**Bontec SG geotextiles offer the perfect cost-effective solution for separation, filtration and subbase reinforcement. Bontec SG geotextiles are manufactured from polypropylene tapes.**



**Bontec SG in basal reinforcement application**

Bontec SG are used in areas such as access roads, railways and hard standings for separation, filtration and also for reinforcement. One important benefit of Bontec SG is their high resistance to acid and alkaline environments.

**Description of application**

For roads, railways or airports, embankments and working platforms built over poor subgrade material it is possible to utilize geosynthetics to reinforce the subbase material in order to produce a stable surface and reduce the rutting depth on unpaved roads or minimize deformation in any structure. Reinforcement composite materials can be used also to ensure the segregation of the subgrade and subbase.

**Areas of application, foreword**

To achieve maximum performance and avoid damage of the Bontec SG, basic installation procedures should be respected. Correct handling of the product on site and during installation is of great importance. This manual gives guidance and recommendations to the installer of this product to ensure that long term performance is secured. Please inform your contact from Bontexgeo directly to get technical assistance in case any deviations to the described steps below.

The information in this instruction reflects the experience gathered over time by Bontexgeo. The actual installation procedure must be aligned to fit to site-specific circumstances and available working equipment.

**Transport, storage and handling**

The rolls are packaged for normal transport and offers sufficient protection against normal weathering impact. The rolls must be handled with care during unloading and transport on the construction site:

- the rolls of the product must be stored on a dry, clean and even surface;
- the stack of product should not be more than four rolls high, and they must not be burdened with any additional loads;
- the package should be opened only before the immediate use of the material;
- large rips or torn areas of packaging foil should be covered.

### Preparation of the subsurface

All networks (gas, sewer, water, etc.) must be built and finished before the product is laid, so that there is no need to excavate and potentially damage the reinforcement layers. Before installation of Bontec SG product, the subbase surface must be prepared as follows:

- the existing surface should be cleaned of items which could damage the product by either tearing or puncturing (for e.g. sharp stones, tree branches, etc.), consequently affecting its functions negatively;
- larger cracks or potholes have to be filled with local soil or any suitable soil to achieve a smooth surface;
- the subsoil has to be compacted properly (acc. to local rules or standards);

### Installation of the product

The placement and direction of the unrolled geosynthetic must be clearly determined within the construction design. The location of the geosynthetic must be identified by stakes. The geosynthetic must be evened out, stretched and anchored by “U” or “J” shaped steel clamps or a small portion of filling material (at least in every 3 m) to remove any folds and waves, immediately safeguarding proper interaction between the product and the soil.

When dealing with reinforcement of unbound supporting layers in road or railway construction, the overlap must be:

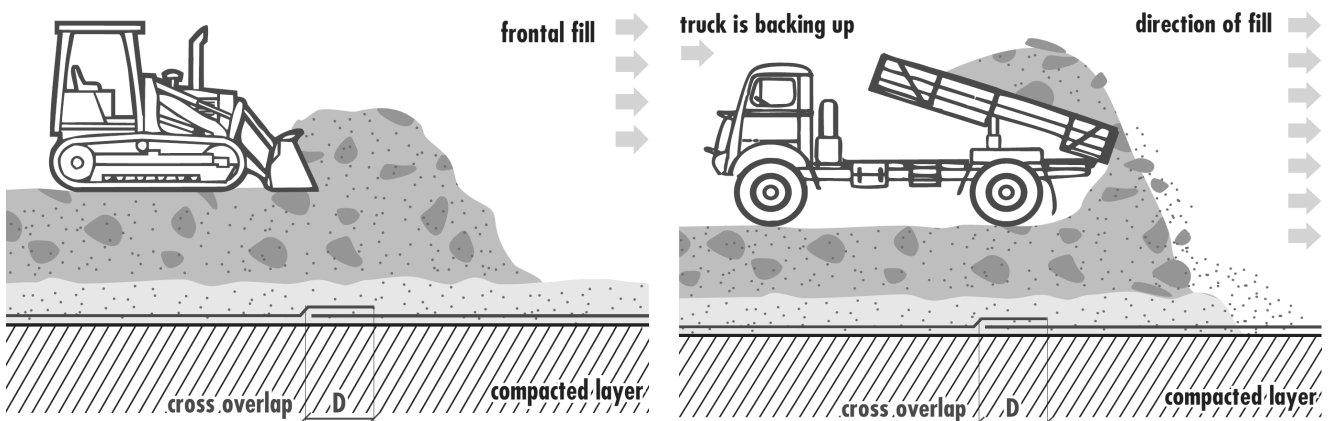
- in case of surface with moderate load bearing capacity (CBR > 3): 30 cm;
- in case of uneven surface with soft load bearing capacity (1 < CBR < 3): 50 cm;
- in case of subsurface with very soft bearing capacity (CBR >1): 100 cm;

### Installation of the fill material

After installation, the product has to be prevented from being directly driven on. A 20 cm thick layer of subbase material must be installed and compacted in front-spread method before the surface can be exposed to traffic.

The particle size distribution curve of the fill should be well graded and aligned with the selected reinforcement layer to reach an optimal compaction level and interaction between the product and the fill material.

High water content of the soil layers should be expected, especially in case of seasonal fluctuation of high ground water levels in cohesive subsoils. Accordingly, the proportion of fine components (< 0.063 mm) should be restricted to no more than 5 % of the weight, in order to enable smooth water drainage without significant pressure. This requirement must be defined to an even stricter degree when dealing with recycled construction materials and recycled construction material mixtures.



Spread the aggregate

Backfill the aggregate

### Preferred fill type

For optimal interaction between the soil and geosynthetic it is advised to apply a sand, gravelly sand or sandy-gravel fill with a grain size of maximum 32 mm.

Special treatment is advised in case the fill has more than 10% of a grain size larger than 32 mm. In certain cases a protective layer of finer graded soil (of approx. 20 cm) should be installed first.

### Compaction of the fill material

The water content of the fill should be optimal to ensure a proper compaction level of the fill. To immediately activate the reinforcement effect, it is advisable to start the compaction process in the middle of the structure and to then work outwards to the edges. The thickness of the individual fill layers must be in line with the sub-base/sub-structure, the type of fill material and the equipment available for compaction.

### Disposal of waste product

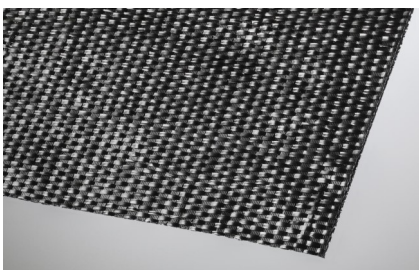
A small quantity of waste is generated with each roll of geotextile product used. This can include packing, a plastic or cardboard roll center and possibly product offcuts. We would ask that you please give consideration to the environment when disposing of this material.

### Summary

Reinforcement of earthwork constructions using geosynthetics is a well-accepted, economic and ecological alternative to traditional construction solutions. In some areas, it has even become a standard construction method. However, one must not neglect the fact that the installation of geosynthetics requires a certain care and that the standards and regulations for earthwork must be adhered to. These installation instructions can only cover the most important points. In case of questions regarding the above or related items, we will be pleased to be of assistance at any time.

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### Product picture



#### Bontec SG

Woven geotextile for soil reinforcement and separation

The information set forth in this data sheet reflects the best knowledge at the time of publication. The document is subject to change pursuant to new developments and findings. The same reservation applies to the properties of the products described. No liability is undertaken for results obtained by usage of the products and information.