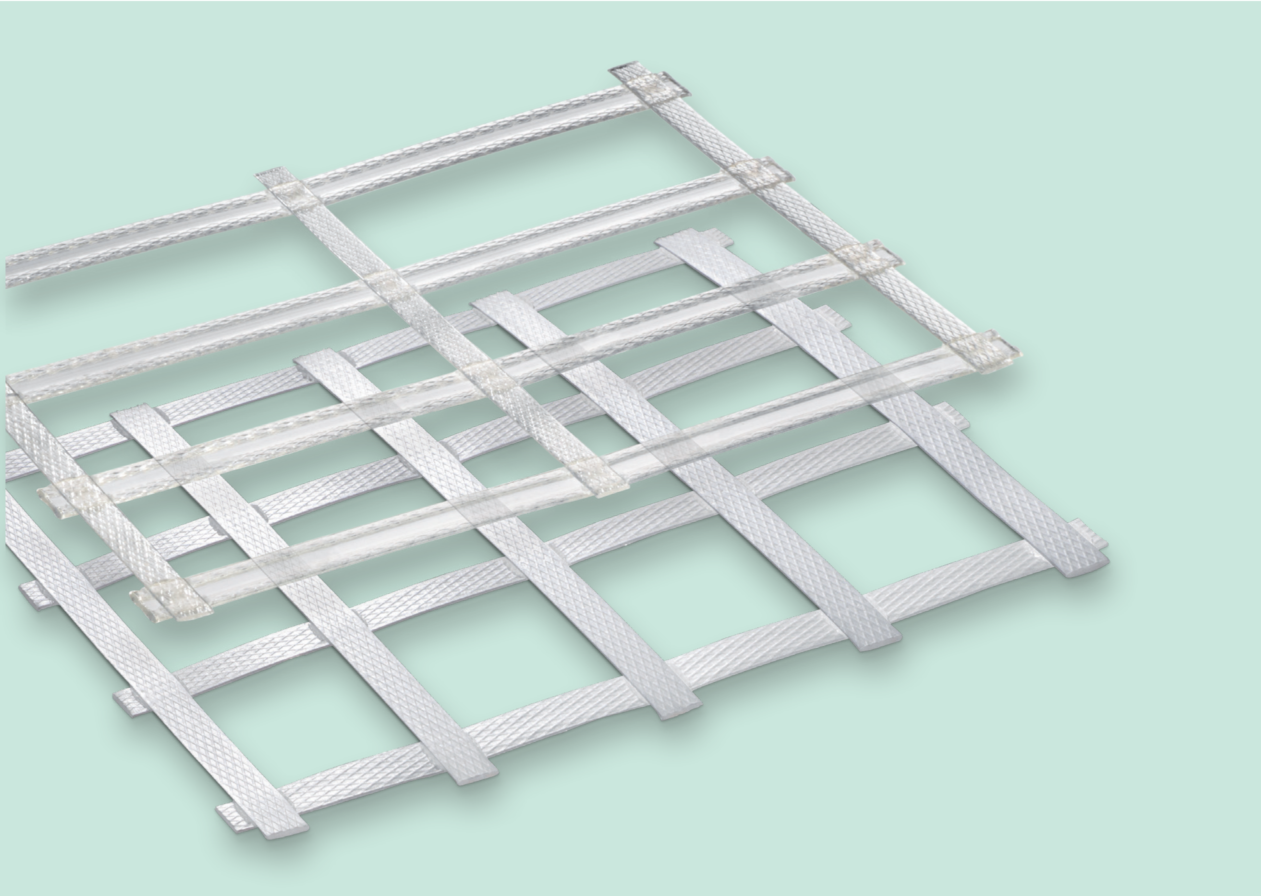
Secugrid®
PET/PP

Geogrids



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Building on sustainable ground.

Secugrid® PET/PP uniaxial and biaxial geogrids are laid geogrids made of stretched, monolithic polyester (PET) or polypropylene (PP) flat or profile bars with welded junctions.

Secugrid® PET/PP geogrids combine high stiffness and low creep tendency with extreme robustness.

TYPICAL APPLICATIONS FOR SECUGRID®

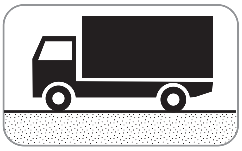


Figure 1:
Base Course Stabilisation & Reinforcement

Base Course Stabilisation & Reinforcement

Secugrid® biaxial PP/PET geogrids stabilise and reinforce unbound granular layers through lateral confinement and mobilisation of tensile resistance. Typical applications are e.g. temporary roads, permanent traffic areas, railways and working platforms.

Application advantages of Secugrid®

- Minimising lateral movement within aggregate base course
- Improvement of bearing capacity
- Extension of maintenance cycles/design life

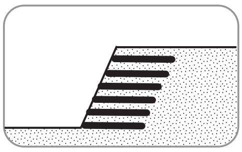


Figure 2:
Walls and Slopes

Wall and Slopes

Secugrid® biaxial and uniaxial PET geogrids interact with the surrounding soil to make earth structures stronger and more durable against applied loads.

Application advantages of Secugrid®

- Inclinations between 45° and 90° achievable
- Large variety of facing systems (vegetation, gabions, concrete blocks/panels)
- Use of locally available soils possible
- Fast and economic solution vs. conventional methods (concrete retaining walls)

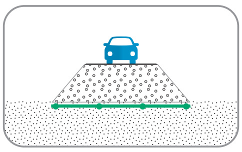


Figure 3:
Embankment on soft soil

Embankment on Soft Soil

Secugrid® uniaxial PET geogrids increase the stability of embankment structures on soft soils – during construction phases and in the final state.

Application advantages of Secugrid®

- Increased stability of embankment
- Faster construction progress due to shorter consolidation periods
- Mitigation of differential settlements in case of a heterogeneous subsoil
- Long-term stability (low creep tendency/high long-term resistance)

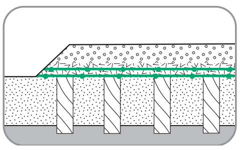


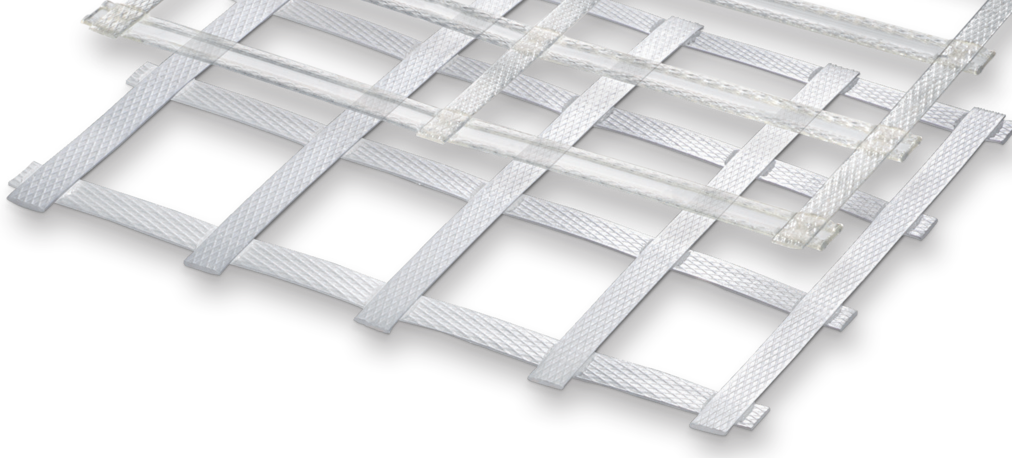
Figure 4:
Load transfer platforms over piles

Load transfer platform over piles

Secugrid® uniaxial PET geogrids are used to reinforce load transfer platforms over piles to control embankment stability and settlements. The piles are transferring the load of the embankment through the soft compressible soil layer to a deeper, firm foundation. The relief of the stresses onto the soft soil is achieved by load distribution within the reinforced base course towards the piles.

Application advantages of Secugrid®

- Larger pile spacings (due to high tensile strength)
- Absorption of lateral thrust forces eliminates the need for raking piles
- Mitigation of differential settlements
- No waiting time for consolidation processes



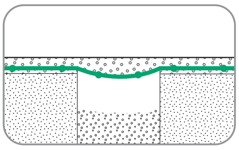


Figure 5:
Bridging of sinkholes
and mining voids

Bridging of sinkholes and mining voids

Secugrid® PET uniaxial geogrids are installed below embankments or fill layers in order to limit the amount of surface deformation caused by subsidence. These voids can be the result of natural processes (e.g. subrosion in karstic areas) or artificial processes (e.g. groundwater extraction or underground mining).

Application advantages of Secugrid®

- Reduced risk of accidents in the event of occurring sinkholes/mining voids
- Increased safety due to high ductility of the system
- Economic and ecologic alternative to rigid raft foundations

ADVANTAGES OF SECUGRID® PET/PP

Secugrid® PET/PP geogrids are the choice for all applications where high tensile strength over a long service life is required. The selection of the polymers used in combination with the applied product technology guarantees a robust and durable stabilisation and reinforcement product.

High stress absorption at low strains

Shear stresses in granular soils are substantially reduced when comparatively small axial strains (< 2%) are achieved. Geogrids reduce deformation and increase the stability, safety and serviceability of reinforced soil structures. The stress-strain behaviour of geogrids influences the available strength absorption capability of soils especially at low strains thus, reducing rutting, bulging and crack formation, and other mechanisms of failure within roads and other reinforced soil structures. Secugrid® achieves a high modulus (high tensile strength at low strains (Fig. 6)) and exhibits a low creep tendency. This is essential for safe, economically durable engineering work and high serviceability.

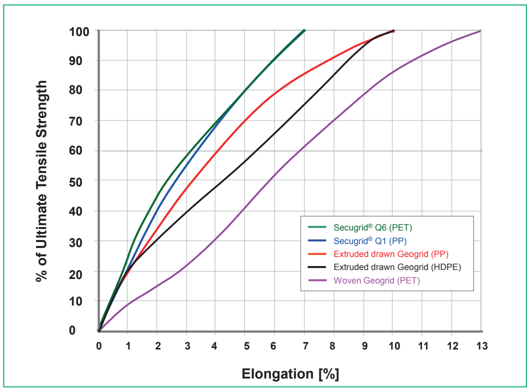


Figure 6: Stress/strain curves of Secugrid® and selected geogrids

Efficient interaction between soil and geogrid

Secugrid® geogrids absorb tensile forces applied to the soil and distribute the stresses via their flat and stiff bars. This transfer of stresses takes place by two distinct mechanisms: interlock of the granular soil with the grid apertures (a.k.a. stabilisation) and friction between the soil and the textured surface of the Secugrid® bars.

The apertures allow full or partial penetration of the soil particles, which then abut against the ribs (flat bars) providing confinement of the overlying granular/soil material due to the stiffness and strength of the ribs. Furthermore, the high torsional rigidity provides the essential durability for long-term interlocking performance. The combined effect of the interlocked soil and the high tensile stiffness of the geogrid minimises soil deformation and ensures the integrity of the reinforced structure.

Figure 7: Interlocking effect demonstrated by a Secugrid reinforced gravel column supporting a van

Approvals for the Naue Group

Secugrid® Q6 and R6

Secugrid® HS R6

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