Asphalt Reinforcement

Geosynthetics for Roads and Pavements

HUESKER
Ideas. Engineers. Innovations.

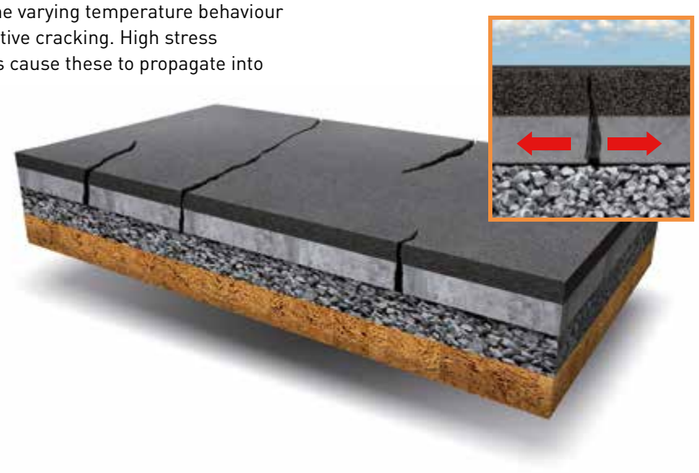
Not another construction site!

HUESKER's asphalt reinforcement systems have been successfully used in Australia since 1991. They have since gone on to be used at nearly all major Australian Airport and State Road Authorities. Please contact our office to find out how our solutions can add value to your road network.

Society's growing mobility and the, in some places, rapidly ageing road network are currently confronting the road construction sector with ever greater and, above all, cost-intensive challenges.

The constantly increasing dynamic loads on pavements, the daily and seasonal temperature fluctuations, and the varying temperature behaviour of asphalt and concrete bring about reflective cracking. High stress concentrations at the tip of existing cracks cause these to propagate into any new asphalt overlay.

Reflective cracks arise
- due to the nature of the existing base
- on carriageway widening schemes
- at joints between paver passes
- above the location of road excavations
- above expansion joints in concrete pavements



The challenge.

Our purpose-designed asphalt reinforcement products can extend the service life of pavements several times over.

Asphalt interlayers between asphalt courses or between asphalt and concrete take up the stresses from the asphalt or concrete layer and distribute them over a wider area. This achieves an up to fourfold retardation of cracking.

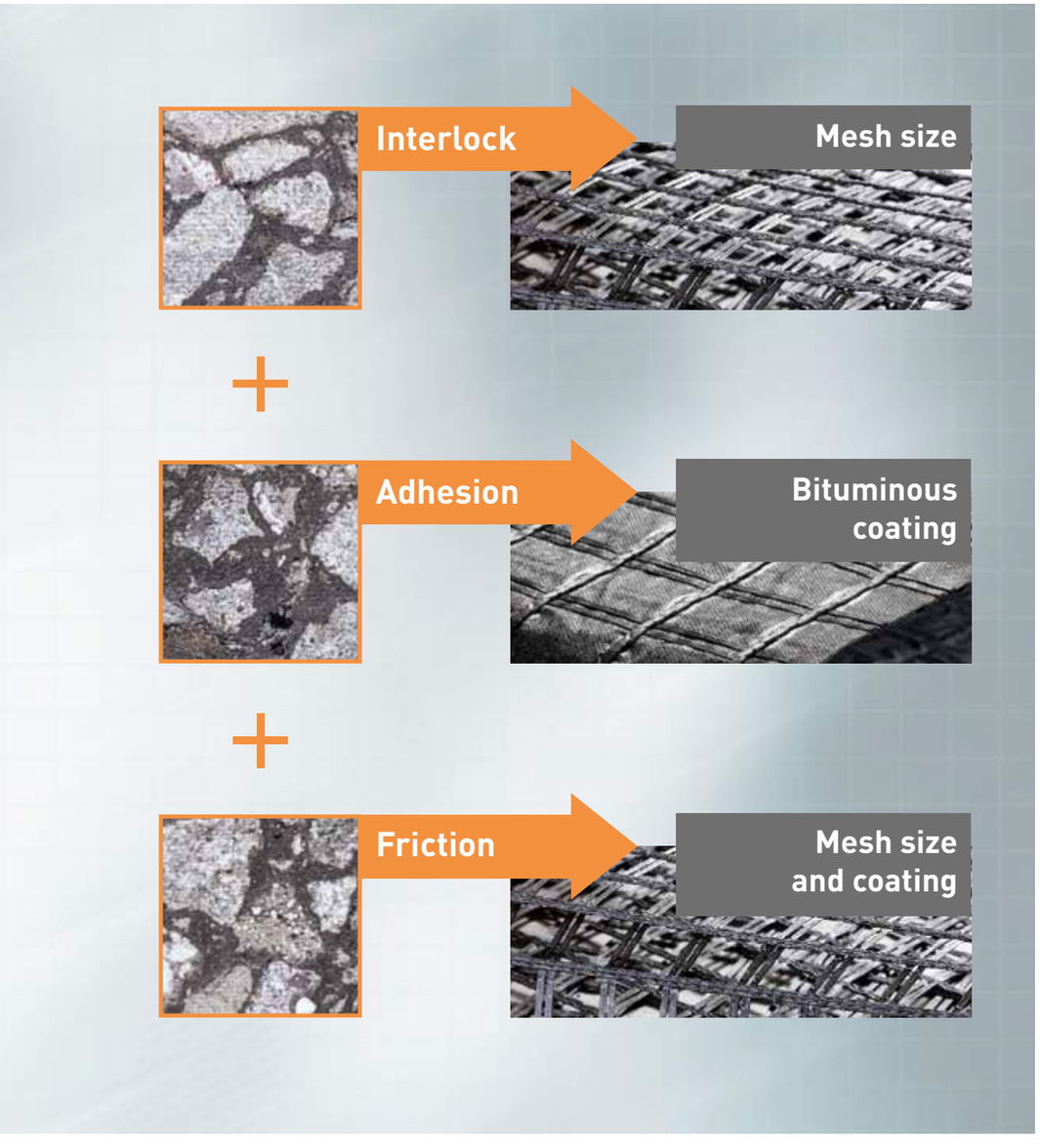
Your benefits:
- Lengthening of maintenance intervals
- Extension of service life
- Reduction in maintenance costs

For over 40 years, these features have enabled HaTelit to deliver highly cost-effective solutions for asphalt and concrete pavement rehabilitation.

The solution.

A strong bond

A key factor in the rehabilitation of asphalt and concrete pavements is bond strength. This is determined by the interlock, adhesion and friction between the asphalt layers. High-quality asphalt reinforcements are specifically designed to enhance this effect by means of appropriate mesh sizes and coatings with a high bitumen content.



The secret of our success? The coating!

Nothing sticks better to bitumen than bitumen! That is why all our products incorporate a coating with a bitumen content > 65 %.

By opting for our asphalt reinforcement products, you will enjoy key benefits:

1. Straightforward, reliable installation

- Bituminous coating ensures excellent adhesion to base layers as well as the new asphalt overlay
- Nonwoven backing facilitates installation by saving time and protecting against displacement
- Roll lengths up to 150 m and varying roll widths up to 5 m reduce the number of overlaps and allow higher installation rates
- High flexibility and adaptability simplify laying

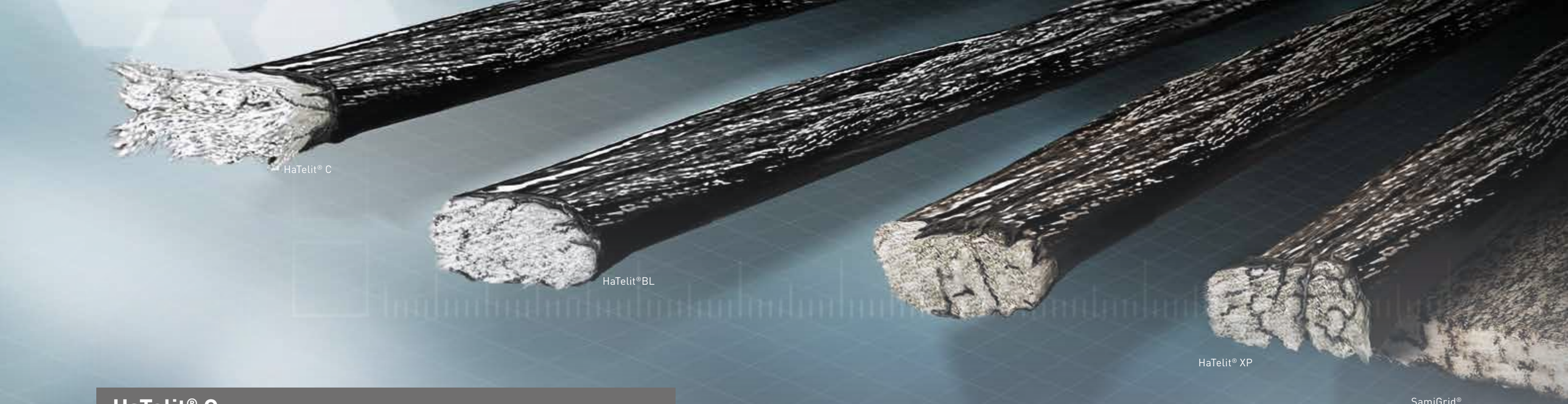
2. Highly resistant to installation damage

- When driven over by asphalt trucks or tracked pavers
- During compaction of asphalt
- When laying on milled surfaces
- In alkaline environments (when installed on concrete surfaces)

3. Strong bond

- Bond between reinforcement and asphalt PLUS bond between asphalt layers
- Excellent interlock between asphalt layers thanks to ultra-lightweight nonwoven backing and mesh size > 3 cm

Bitumen content of coating > 65 %



HaTelit® C

Flexible grid for durable, high-performance reinforcement of asphalt layers
HaTelit C 40/17 comprises a reinforcement grid made from high-modulus polyester (PET) yarn with an ultra-lightweight nonwoven backing. As proven by its 40-year track record, HaTelit C offers a highly durable and thus cost-effective solution which, thanks to the special properties of polyester, is well able to withstand long-term dynamic loads.

- Optimum retardation of reflective cracking
- Maximum resistance to installation damage
- High resistance to long-term dynamic traffic loads
- No loss of strength due to moisture

- Also available as ecoLine product version

HaTelit® C eco

Made from 100 % recycled post-consumer PET water bottles, HaTelit® C eco enhances the already far-reaching sustainability benefits of our HaTelit® C asphalt reinforcement technology. Engineered based on well-demonstrated field performance and driven by the demand from our clients, HaTelit® C eco offers environmentally-conscious clients a reinforcement solution with the highest contribution to preservation of both their assets and the environment.

eco LINE 100% RECYCLED PET

HaTelit® BL

Self-adhesive reinforcement grid for rehabilitation of asphalt and concrete pavements
The flexible, high-tensile reinforcement grid made from high-modulus polyester yarn laminated with bitumen sheet is particularly suitable for the rehabilitation of small asphalt and concrete pavement areas. The use of HaTelit BL also prevents any moisture or frost from infiltrating into the lower asphalt layers.

- Self-adhesive thanks to laminated bitumen sheet
- No need for additional spraying with bitumen emulsion
- Ideal for small pavements areas - Peel and apply over individual joints or cracks
- Reduced effort thanks to fewer site operations and lower plant requirement

HaTelit® XP

Reinforcement grid made from unique raw material offering maximum performance and versatility
HaTelit XP is manufactured from polyvinyl alcohol (PVA) and thus exhibits a variety of useful characteristics. Being alkali-resistant, the reinforcement grid can be installed in asphalt or, if necessary, directly on milled concrete pavements. The fact that it also possesses all the familiar features of the HaTelit range makes this product particularly versatile in meeting diverse challenges.

- Highly efficient retardation of reflective cracking
- Very high resistance to installation damage
- High resistance to long-term dynamic traffic loads
- Durable resistance in alkaline environments (on concrete surfaces)

SamiGrid®

Product of choice for rehabilitation of concrete pavements with asphalt
SamiGrid is a composite product comprising a geogrid made from high-modulus polyvinyl alcohol (PVA) in combination with a 130 g/m² nonwoven fabric. The reinforcing action of the grid is complemented by the sealing function of the bitumen-saturated nonwoven. Due to its alkali resistance, SamiGrid is a perfect option for the rehabilitation of concrete pavements.

- Composite comprising PVA reinforcement grid and 130 g/m² nonwoven
- Ideal for rehabilitation of concrete pavements (alkali-resistant)
- Stress-relieving and reinforcing function
- Very high resistance to installation damage

Soundly reinforced with HaTelit and SamiGrid

Our solution portfolio at a glance

Property	HaTelit C HaTelit C eco	HaTelit XP	HaTelit BL	SamiGrid
Strain at nominal tensile strength	≤ 12 %	≤ 6 %	≤ 12 %	≤ 6 %
Tensile strengths (MD + CMD)	≥ 50 kN/m	≥ 50 kN/m	≥ 50 kN/m	≥ 50 kN/m
Bitumen content of coating	> 65 %	> 65 %	> 65 %	> 65 %
Tensile strength after installation damage test	> 90 %	> 90 %	> 90 %	> 90 %
Ratio of strength of damaged specimen to nominal strength of reinforcement grid of "fully damaged" specimen to	> 80 %	> 80 %	> 80 %	> 80 %
Raw material	Polyester	PVA	Polyester	PVA
Cuttable	Yes	Yes	Yes	Yes
Roll length	150 m	150 m	15 m	100 m
Roll width	Up to 5 m	Up to 5 m	1 m	Up to 5 m
Mesh size	4 cm	4 cm	4 cm	4 cm

The above is only part of the Technical Data, for full Technical and Performance Specification on each solution, please contact your local HUESKER Australia office at **office@HUESKER.com.au**

For highest levels of quality, HUESKER applies - 0.00 and + 0.00 tolerances as appropriate to the actual produced material e.g. > 65 % bitumen coating and ≥ 50 kN/m tensile strenght have - 0.00 tolerance, and ≤ 6 % strain has + 0.00 tolerance).

Future milling and recycling of end of life pavement materials for reuse within asphalt pavements: Successful milling and recycling reports are available on request.

Runway 06 at Perth Airport: Rehabilitation of severely cracked pavement with HaTelit C 40/17

Following repeated maintenance works over many years, in 2009, the extensively cracked Runway 06 Threshold at Perth Airport in Australia required resurfacing to restore its serviceability.The existing pavement consisted of 300 mm concrete slabs constructed in 1960, which were later overlaid with 20 mm asphalt surfacing.

To effectively retard reflective cracking and extend the fatigue life of the rehabilitated pavement, HUESKER's HaTelit C 40/17 high-modulus bitumen-coated polyester (PET) asphalt reinforcement was used. The rehabilitation procedure involved texturing of the existing asphalt surface, construction of a 25 mm asphalt concrete layer, followed by the installation of the HaTelit C 40/17 reinforcement, and a 40 mm asphalt overlay. In 2020, approximately 10 years after its rehabilitation, the runway pavement was found to be in an extremely good condition, without the propagation of the existing cracks and joints, well exceeding the expectations.

Pavement condition in 2009 prior to rehabilitation

Salgado Filho Airport, Brazil: Taxiway rehabilitation with HaTelit C

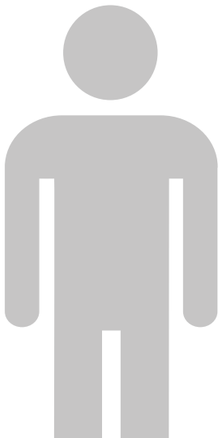
In 2001, a 40-year-old taxiway providing access to an aircraft maintenance hangar required resurfacing. The pavement comprised 6.0 x 3.5 m concrete slabs, 30 cm thick. As it was not possible to close off the access route for an extended period, all rehabilitation works had to be completed within a single night. Therefore, to save time, only the more heavily loaded inner part of the pavement was reinforced with HaTelit C and overlaid with a 5 cm asphalt course. The outer areas of the taxiway were left unreinforced. Seven years later, in October 2008, the difference between the reinforced and unreinforced pavement sections was clearly visible. The expansion joints in the unreinforced areas had not only propagated to the surface, but were riddled with vegetation. The parts reinforced with HaTelit, on the other hand, showed no signs of cracking.

HUESKER Services

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

Engineering Services

- **Technical consulting**
  We will recommend the appropriate product types for your specific requirements.
- **Technical design**
  Our engineers will be delighted to assist you by performing verifiable design calculations and checks in accordance with recognised methods.
- **Project-specific placement plans**
  We will prepare installation and placing recommendations plus installation diagrams.
- **Sharing of our extensive knowledge**
  Best-practice solutions and techniques from our global network.



At HUESKER, every
7th employee is
an engineer

Product Services

- **Custom designed product solutions**
  We will assist you in developing customfabricated products to meet your particular requirements.
- **Alternative solutions**
  We will propose alternative design solutions as well as recommendations for adjustments and optimisations.

Documents

- **Certificates**
  Our products have been issued numerous certifications, for example, by BAM, BAW, BBA, EBA, IVG and SVG, depending on the product type.
- **Installation guidelines**
  Technical guidelines will help you to ensure the best-practice installation of your product on site.
- **Tender documents**
  We would be happy to provide you with proposals for your specification texts.

On-The-Spot

- **On site instruction**
  Where required, our application technicians are ready to offer assistance, even directly on site.
- **Installation aids**
  We can offer you practical installation aids to facilitate the application of our products.
- **Training**

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HUESKER
Ideas. Engineers. Innovations.