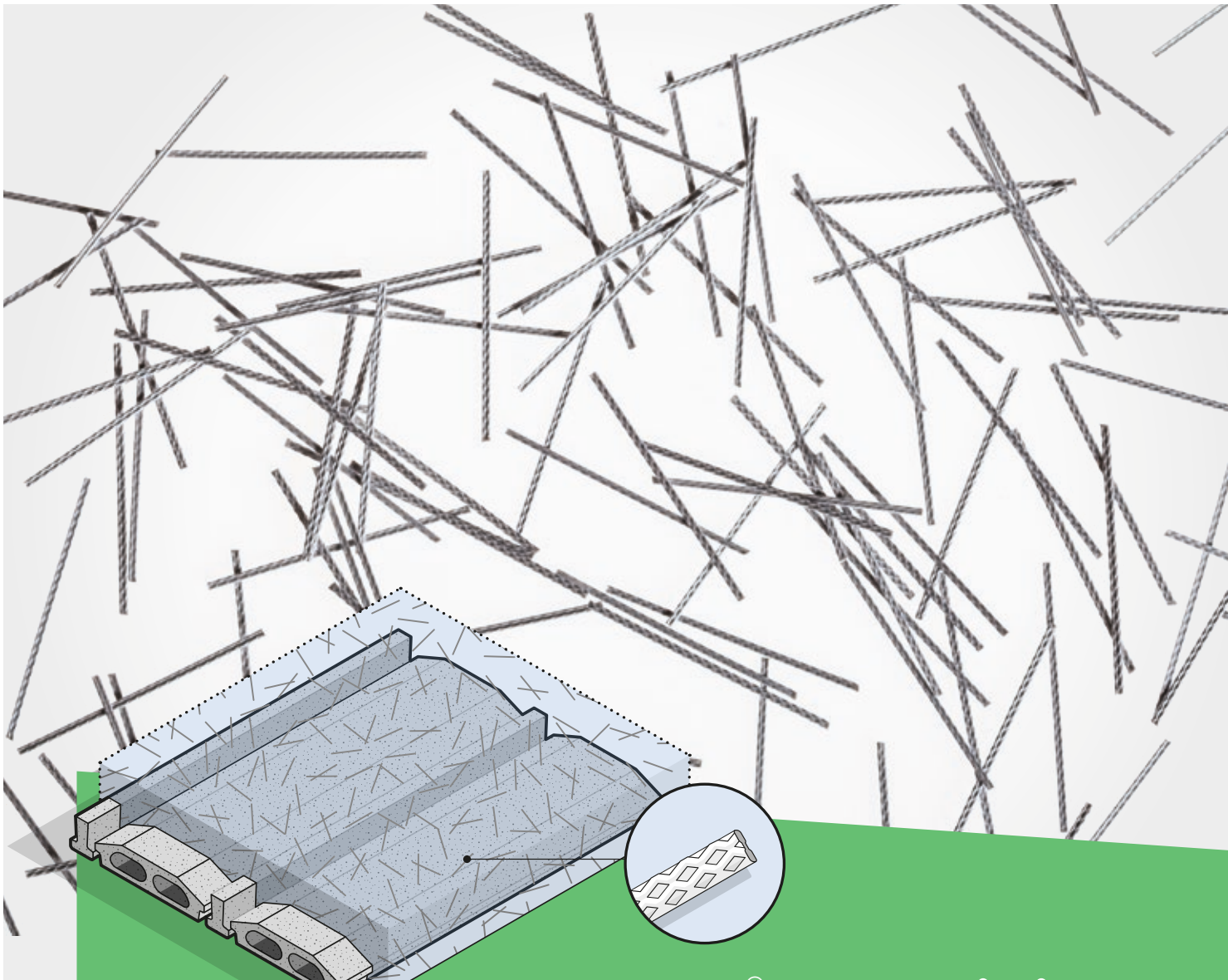


**PP
NORDICA
GROUP**

Fiber reinforced solutions

Fiber reinforced solutions



DURUS[®] EasyFinish Synthetic macro fibre

The solution for floors and pressure layers:
concrete and reinforcement in one

Simple to use • Cost efficient • Environmentally friendly • Certified

DURUS® EasyFinish Synthetic macro fibre

The solution for floors and pressure layers:
concrete and reinforcement in one

The performance of the reinforcement applied is key to the durability of interior floors and pavements as well as pressure layers. It prevents shrinkage cracks and increases the impact and abrasion resistance of the finished concrete surface. In most designs Durus EasyFinish macro fibres can replace steel mesh reinforcement. This saves costs, enables faster construction and makes for improved safety.



Reinforced concrete floors

Fig. 1 / Calculation example with concrete class C35/45 (EE4), 200 mm thick

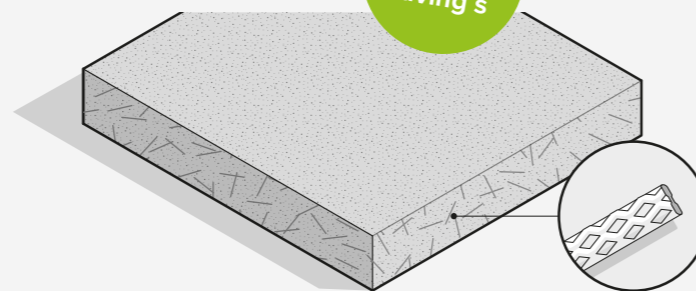
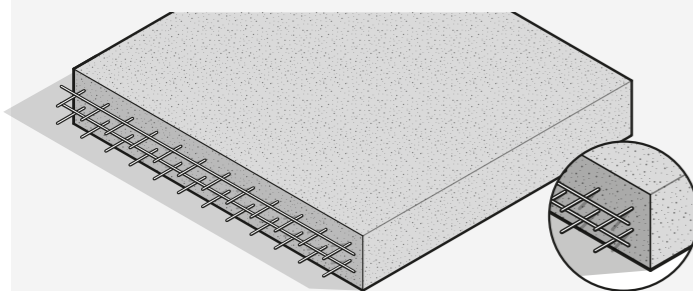
Steel reinforcement

Concrete	17 €/m ²
Reinforcement	Upper steel mesh 150/150/8/8 mm 4.60 €/m ² Lower steel mesh 150/150/8/8 mm 4.60 €/m ²
Installation, waste	2.60 €/m ²
Total reinforcement cost	11.80 €/m²
Total cost/m²	28.80 €/m²

DURUS EasyFinish

Concrete	17 €/m ²
Reinforcement	Durus EasyFinish 4 kg/m ³ 6.50 €/m ²
Total reinforcement cost	6.50 €/m²
Total cost/m²	23.50 €/m²

20%
cost
saving s



Reinforced pressure layers

Fig. 2 / Calculation example with concrete class C25/30, 50 mm thick

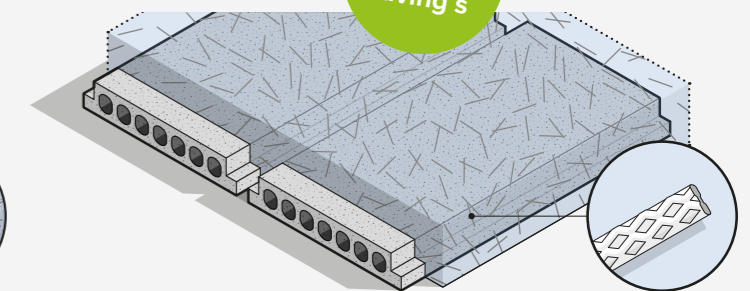
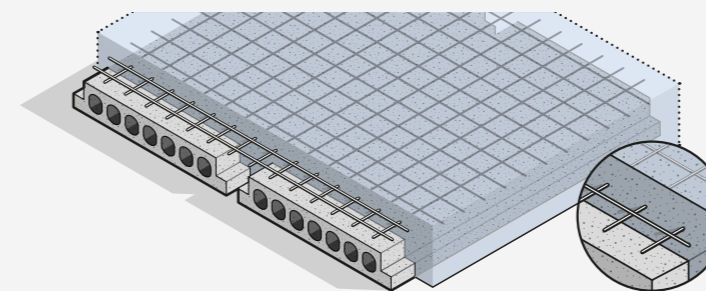
Steel reinforcement

Concrete	4.20 €/m ²
Reinforcement	Steel mesh 150/150/5/5 mm 1.80 €/m ²
Installation, waste	0.80 €/m ²
Total cost/m²	6.80 €/m²

DURUS EasyFinish

Concrete	4.20 €/m ²
Reinforcement	Durus EasyFinish 3kg/m ³ 1.20 €/m ²
Total cost/m²	5.40 €/m²

20%
cost
saving s



More and more contractors and designers prefer synthetic fibres over conventional steel mesh reinforcement. They not only deliver major advantages at the design stage of a project and during construction. Three-dimensional rust and corrosion-free synthetic fibre reinforcement also makes for a longer service life of the finished concrete structure.

Certified technology

DURUS EasyFinish synthetic macro fibres have obtained BBA and KIWA approval from the NHBC via BBA third party testing for beam & block floors. Leading floor system companies have DURUS EasyFinish on their certificates. Additional national certificates include the Belgian ATG certificate endorsing the product's processability and homogeneous distribution throughout the full volume of concrete mixes.

Cost efficient

DURUS EasyFinish delivers cost savings on material and working hours. In most cases no more than 3 kg/m³ are needed in the concrete (see figures 1 and 2).

Safe & ergonomic

DURUS EasyFinish is a safe reinforcement solution, no matter whether the product is added at the concrete plant or on site. Unlike with steel fibres, the use of this flexible synthetic product avoids cuts during dosing. With DURUS EasyFinish fibres protruding from the concrete after curing are a thing of the past. And there are no more trips, falls or cuts resulting from the handling and placement of steel mesh.

Environmentally sustainable

No concrete reinforcement technology is more environmentally sustainable than the use of polymer fibres (see figure 3). DURUS EasyFinish not only controls the concrete's post-crack

behaviour. It also is a proven solution to plastic shrinkage cracking. Significantly more efficient than steel fibres or mesh.

Proven performance

Testing according to ASTM C1579-13 has shown that only 3 kg/m³ of DURS EasyFinish reduce plastic shrinkage by at least 65 %. The residual tensile strength has been evaluated at the WTCB (see figure 4). In addition to independent laboratories, actual and prospective clients can have DURUS EasyFinish tested in their specific concrete mix at our in-house Adfil concrete laboratory.

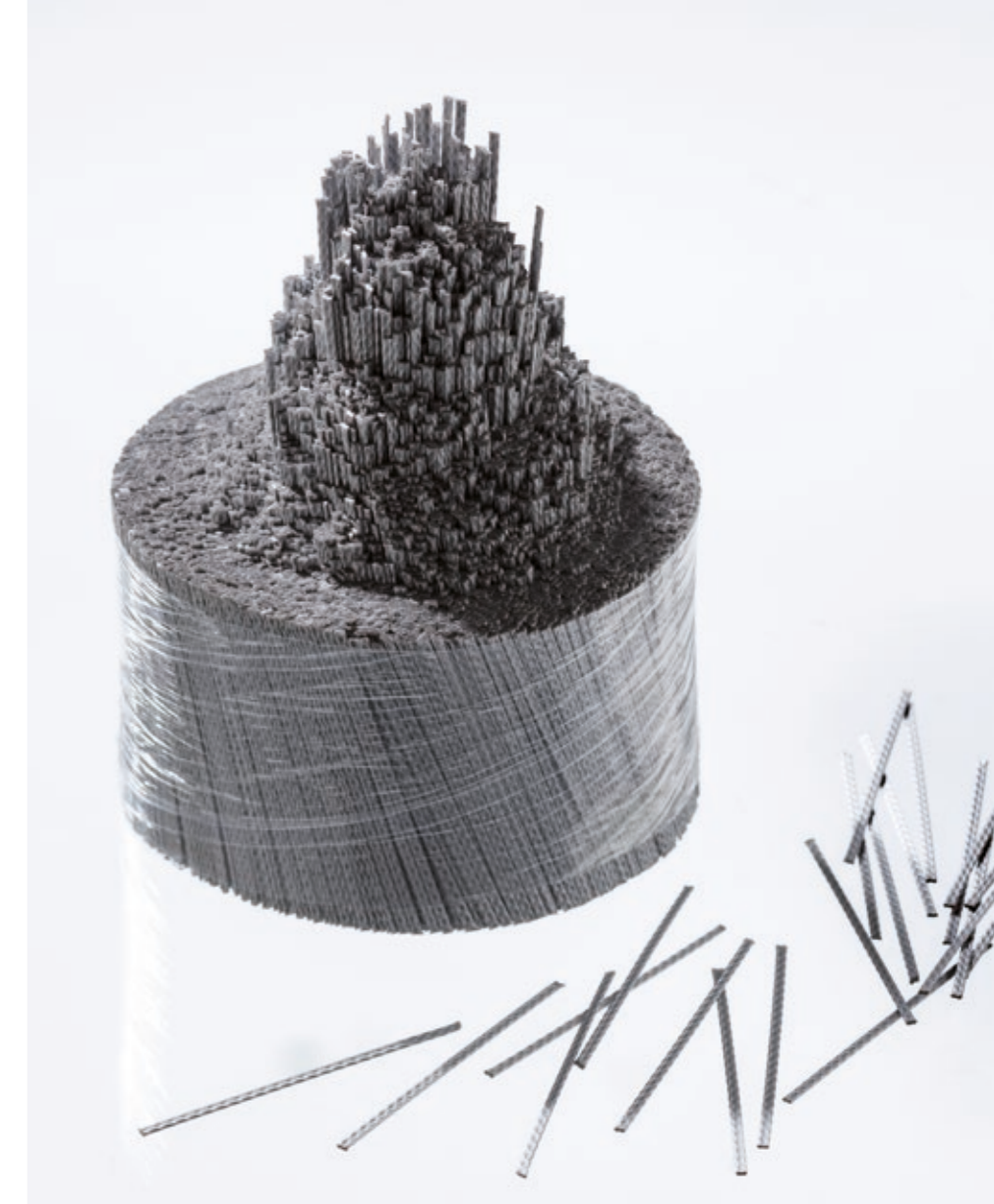
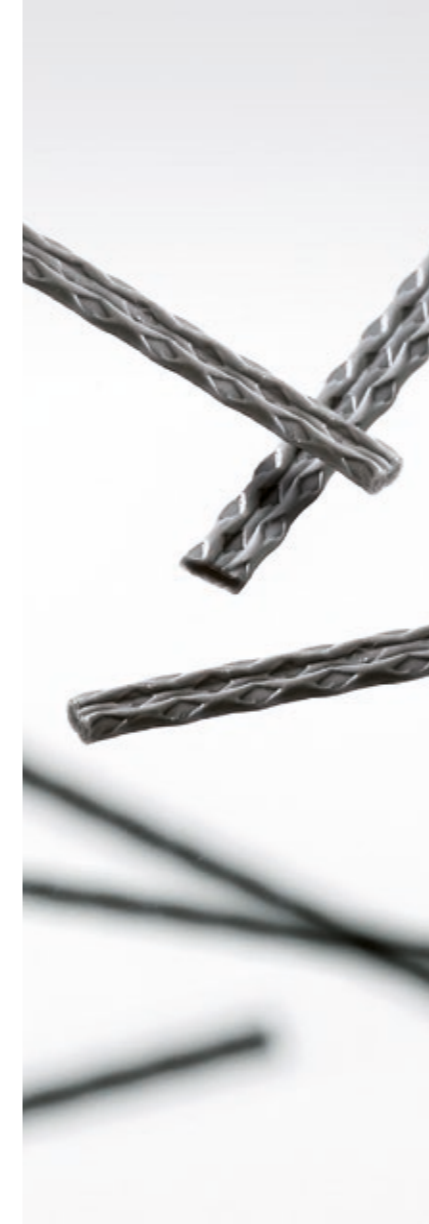


Fig. 3 / CO₂ equivalent for reinforced concrete

Product	CO ₂ equivalent (kg CO ₂ /t)*	Quantity (kg per m ²)	CO ₂ equivalent per m ²
Steel mesh	1,932	10.6	20,479
Synthetic fibres	260	0.8	208

*) Source: ITAtech (2016), Guidance for Precast Fibre Reinforced Concrete Segments, Vol. 1: Design Aspects, p. 24

Fig. 4 / Three-point flexural bending test according to EN 14651



The processability of DURUS EasyFinish has been tested in different applications and concrete mix designs for flooring. The dosages shown below have been calculated according to TR 34 4th edition 2013, at a subgrade reaction modulus of $k = 40 \text{ MN/m}^3$ and under a typical load. Our concrete technologists are at your disposal to calculate the ideal dosage for your specific project. If and as required, professional indemnity insurance can be offered on designs done by our consultant engineers, PPCD Engineers. If you would like to learn more about this service, please don't hesitate to contact us at info@ppnordica.dk

Dosage

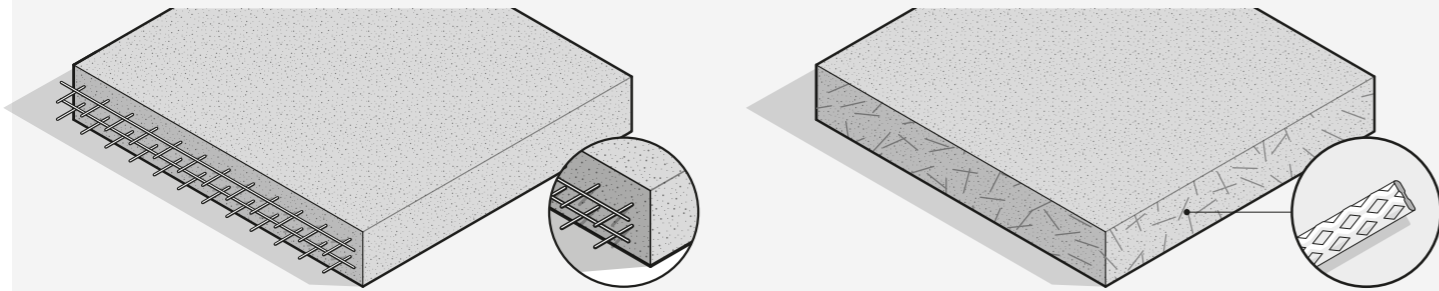
Fig. 5 / Example dosage for flooring

Steel mesh

Concrete	Reinforcement
150 mm C25/30	Reinforcement
150 mm C25/30	Upper layer of mesh
150 mm C35/45	Lower layer of mesh
200 mm C35/45	Upper + under layer

DURUS EasyFinish

Concrete	Reinforcement
150 mm C25/30	3 kg
150 mm C25/30	3 kg
150 mm C35/45	4 kg
200 mm C35/45	4 kg



Above: Measuring plastic shrinkage cracks by digital microscope
Below: Pressure layer built with DURUS EasyFinish concrete reinforcement



Why use DURUS EasyFinish?

- Great ease of use
- Reinforcement included in the concrete on delivery
- Limited impact on processability with slump S4
- No more transport, handling and placement of steel mesh
- Cannot be misplaced
- Safer for workers to use
- Rust and corrosion-free





PP Nordica Group

Solbakken 1,
DK-6823 Ansager

+45 27 21 16 32
info@ppnordica.dk
www.ppnordica.dk

Disclaimer

All information and product specifications provided in this document are accurate at the time of publication. We follow a policy of continuous development. The provided information and product specifications may change at any time without notice and must not be relied upon unless expressly confirmed by us upon request. No liability is undertaken for results obtained by usage of the products and information.

© 2018 / PAB-1-ENG-DEF-04/2019

