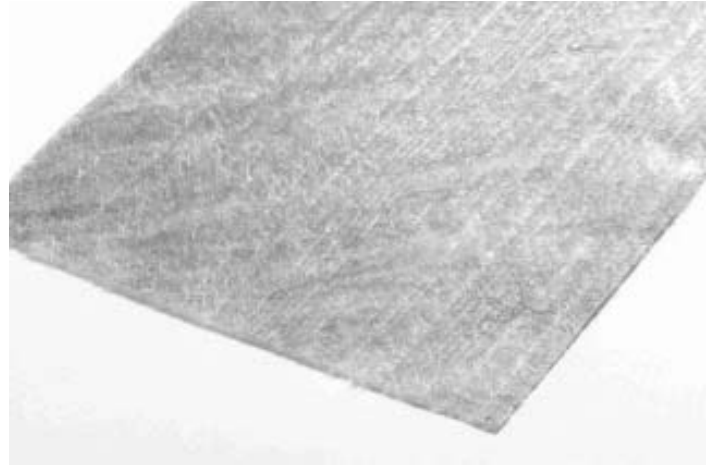


OPTIGRÜN FIL 105

Filter Fleece

Endless fibre fleece with tested water permeability as filter separation layer between drainage and substrate layers.



Material	PP (polypropylen)
Nominal thickness	Approx. 1.1 mm
Grammage	Approx. 105 g/m ²
Colour	Grey
Geotextile robustness class	GRC 2
Mechanical filter efficiency	0.06 ≤ gew. 0 ₉₀ ≤ 0.2 mm (EN ISO 12956)
Max. tensile strength	7.5 / 7.5 kN/m (EN ISO 10319)
Elongation longitudinal/lateral	90 / 75 % (EN ISO 10319)
Puncture resistance	1,200 N (EN ISO 12236)
Vertical water permeability	130 l/s x m ² (EN ISO 11058)
Quantity/delivered unit	200 m ² /roll = 2.0 x 100.0 m 2,200 m ² /pallet
Delivery form	11 rolls on euro pallet 80 x 120 cm
Pack size	Diameter approx. 0.28 m, height approx. 2.0 m / per roll
Delivery weight	Approx. 21.0 kg/roll - Approx. 255,0 kg/full euro pallet
Mechanically strengthened	Yes
Detector tested	Yes

Area of use

- Horizontal filter layer on green roofs between drainage layer and substrate
- Filtration of particles from the substrate.
- As separation between pebble strips and substrate.
- For superstructural parts that can be walked on as a horizontal filter layer

Specific properties

- 100% PP (polypropylene)
- CE-marked
- Puncture resistance 1,200 N
- Vertical water permeability 130 l/s x m²
- 7.5 kN/m tensile strength longitudinal/lateral
- Mechanically strengthened
- Detector tested
- Recyclable

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Optigrün international AG

Am Birkenstock 15 – 19,
72505 Krauchenwies-Göggingen
Tel. +49 7576 772-0, Fax +49 7576 772-299, info@optigruen.de

Optigreen Limited (Service UK only)

Suite G5 Albany Chambers, 26 Bridge Road East
Welwyn Garden City (Herts), AL7 1HL
Phone +44 203 5899400, Fax +44 207 1171664, info@optigreen.co.uk



OPTIGREEN E

Extensive Multi Layer Substrate

Optigreen Extensive Multi Layer Substrate E is used as a vegetation base layer for extensive multi layer green roofs and in the pitched roof area, on roof areas with low load bearing capacity, structurally stabilised and suitable for wide range of plants.



Material (main components)	expanded shale, expanded clay, lava, pumice, crushed brick, Porlith and green waste compost. With a variable composition depending on the region.
Weight when dry (compacted)	min. 750 kg/m ³ (light version) min. 1,000 kg/m ³ (heavy version)
Weight when saturated (compacted)	1,140-1,440 kg/m ³ (light version) 1,320-1,680 kg/m ³ (heavy version)
Max. water capacity	≥ 35 Vol%
pH value	6.0 - 8.5
Salt content	≤ 3.5 g/l
Water permeability	≥ 0.6 mm/min
Compaction factor	1.2
Organic substances	< 65 g/l
Total pore volume	> 60 - 70 Vol%
Delivery form	- loose bulk on an open truck - blown into silo truck - in big bags on an open truck - In sacks on euro pallets by forwarding agent
Quantity/delivered unit	according to size of order

Area of use

Vegetation base layer for extensive multi layer green roofs and in the pitched roof area < 5° roof pitch.

Specific properties

- Fulfils the requirements of the FLL Green Roofing Guideline
- More precise information about the weight is to be requested from Optigreen based on the region of the construction scheme

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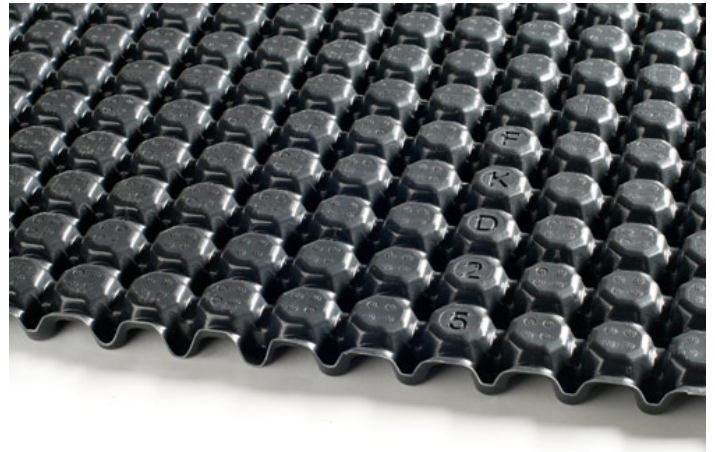
Suite G5 Albany Chambers, 26 Bridge Road East
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OPTIGRÜN FKD 25

Drainage and Storage Board

Made from deep-drawn recycled HDPE with water reservoir function, channel system on the underside for drainage, and with diffusion and drainage holes. For use on extensive green roofs with a multi-layer construction and under path surfaces (can be walked on) with > 60 mm substructure. Suitable for use on inverted roofs.



Material	Recycled HDPE
Nominal thickness	approx. 25 mm
Grammage	approx. 1,350 g/m ²
Colour	black/grey
Max. compressive strength unfilled	approx. 200 kN/m ² (DIN EN ISO 25619-2) approx. 90 kN/m ² with 10% compression
Max. compressive strength filled	approx. 175 kN/m ² with 10% compression and 35 mm overfilling
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with a FIL 105 filter fleece on the upper side: i = 0.01 (=1 % roof pitch): 0.99 l/(m*s) i = 0.02 (=2 % roof pitch): 1.41 l/(m*s) i = 0.05 (=5 % roof pitch): 2.20 l/(m*s) i = 1 (vertical): 10.03 l/(m*s)
Filling volume	small naps facing up = approx. 14.5 l/m ² (surface side) large naps facing up = approx. 7.5 l/m ² (greening side)
Water reservoir unfilled	small naps facing up = approx. 3.6 l/m ² (surface side) large naps facing up = approx. 5.0 l/m ² (greening side)
Reduction in foot fall sound inspected in accordance with EN ISO 10140 assessed in accordance with ISO 717-2	Improvement in foot fall sound for the following layer structures: ΔL_w 33 dB RMS 950 TS, FKD 25, 40 mm chippings, 40 mm concrete slab. ΔL_w 35 dB EPS insulation 120 mm/150 kPa, RMS 950 TS, FKD 25, 40 mm chippings, 40 mm concrete slab.
Quantity/delivered unit	2 m ² /panel = 2.0 x 1.0 m 700 m ² /disposable pallet
Delivery form	700 m ² on disposable pallet 2.05 x 1.05m
Pack size	LxWxH 2,000 x 1,000 x 25 mm
Delivery weight	approx. 2.7 kg/panel - approx. 970.0 kg/full disposable pallet

Area of use

- As a drainage and storage board under extensive green roofs in a triple-layer structure with filter fleece FIL 105 and extensive multi layer substrate E on flat roofs up to RP 5° (= 8.8%).
- As a drainage element under thin-layer pedestrian pathways in gravel beds without compacted base layer without filter fleece directly filled with bedding material. Also lay the FKD 25 with min. 1 row of naps overlapping and overfill with the bedding material (without zero graining, e.g. chippings 2/5) min. approx. 3 cm.

Specific properties

- 100% recycled HDPE
- CE-marked
- Drainage according to DIN 4095
- Safe and targeted guiding of excess water
- Depositing of water in the recesses
- Low weight
- Also suitable for non-pitched roofs
- Lightweight super structure with high drainage capacity
- Recyclable

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OPTIGRÜN RMS 500

Protection and Storage Fleece

To protect the waterproofing with an additional separating and water reservoir function.



Material	PP/PES/acrylic recycled fibres
Nominal thickness	approx. 4.0 mm
Grammage	approx. 500 g/m ²
Colour	multicolour with print
Geotextile robustness class	GRC 2
Water reservoir	approx. 3.5 l/m ²
Delivery weight	approx. 50.0 kg/roll - approx. 275.0 kg/full euro pallet
Pack size	Diameter approx. 0.50 m, height approx. 2.0 m / per roll
Quantity/ delivered unit	100 m ² /roll = 2.0 x 50.0 m 500 m ² /pallet
Delivery form	5 rolls on euro pallet 800 x 1,200 mm
Mechanically strengthened	Yes
Detector tested	Yes
Rotproof	Yes

Area of use

- As a protective layer on waterproofing with an additional separating and water reservoir function, in accordance with DIN 18531-2
- Separation of products made from incompatible materials (e.g. PVC and bitumen)
- Storage of water and nutrients

Specific properties

- 100% recycled plastic fibre (PP/PES/acrylic)
- Water reservoir approx. 3.5 l/m²
- Fulfilment of the requirements of the FLL roof greening directives
- Mechanically strengthened
- Detector tested
- Rotproof
- Recyclable

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OPTIGRÜN EKR/EGR

Seed Mix

Optigrün Seed Mix EKR/EGR for extensive green roofs (also pitched roof). Must be used in conjunction with sedum shoot seeding (then 50 g/m²).



Material	EKR herb version: approx. 30 herb species EGR grass version: approx. 9 grass species Wild, native EKR herb version: approx. 31 herb species	Area of use	- For extensive green roofs (also pitched roof) - Suitable as a complement to sedum shoot seeding nature roof
Delivery form	In breathable fabric sack for 200 or 500 m ² . Herb and grass seeds are fundamentally packed separately.	Specific properties	- Quality of the seed mix in accordance with the requirements of the FLL guideline for green roofs for the condition of wild plants from seed crops - Minimum purity of the seed mix over 75% - Minimum germination capacity over 70% - Carrier fabric to facilitate even seed distribution
Quantity/delivery unit	For 200 m ² : 232 g herb seeds standard, or wild and native. Where required, additional 66 g grass seeds to mix. For 500 m ² : 580 g herb seeds standard, or wild and native. Where required, additional 166 g grass seeds to mix. For 200 m ² : 232 g herb seeds wild and native		

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Datasheet Item No. EKR/EGR Last Update 13.06.2019

Optigrün international AG

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Welwyn Garden City (Herts), AL7 1HL
Phone +44 203 5899400, Fax +44 207 1171664, info@optigruen.co.uk



OPTIGRÜN International AG

Optigrün International AG
Am Birkenstock 15-19
G 72505 Krauchenwies-Göggingen

Phone +49 (0)7576 772-0

Fax +49 (0)7576 772-299

info@optigruen.de

technik@optigruen.de

www.optigreen.com

....m² Optigreen Protection and Storage Fleece Type RMS 300 (RMS 500 with increased requirements) as a protective layer over the root-resistant roof membrane, or Optigreen Root Barrier Membrane

....m² Optigreen Drainage Board Type FKD 25 as drainage layer

.... units of Optigreen Combi Inspection Chamber fitted over the roof drainage outlets

....m² Optigreen Filter Fleece Type 105 as filter layer between drainage layer and extensive substrate

....m² 60 mm Optigreen Extensive Substrate Type E as vegetation layer

....m² pre-cultivated Optigreen Vegetation Mat Type SM/G for rapid and safe establishment of vegetation

Alternative:

....m² Optigreen Seeding with Optigreen Seed Mix Type E and 50 g/m² Optigreen Sedum Shoots

....m² maintenance care