

Technical Approval

SINTEF Building and Infrastructure confirms that

Icopal Fonda Geoplex

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

Icopal AS
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2. Product description

Icopal Fonda Geoplex is a combined water proofing, capillary breaking and drainage layer for use on the outside of basement walls. Icopal Fonda Geoplex is black and has studs where a geotextile filter is welded on.

The cavity between the geotextile filter and the membrane with studs serves as a drainage layer between the wall construction and backfill masses. The geotextile filter is preventing the drainage layer to be blocked by particles in the water. Principle is shown in fig. 1 and 2. Measures and tolerances for Icopal Fonda Geoplex are shown in table 1. Additional accessories for mounting Icopal Fonda Universal are given in Table 3.

Membrane sheet

The Icopal Fonda Geoplex sheet is made of polypropylene with a density of 950 kg/m³ designed with octagonal studs.

Geotextile mesh

The geotextile filter is a non-woven fibre mesh made of polypropylene. The mesh is welded to the studs. Opening size O₉₀ according to EN ISO 12956 is 0,10 - 0,14 mm.

Table 1
 Measures, weight and tolerance for Icopal Fonda Geoplex

Property	Measure ¹⁾	Tolerance
Thickness	0,5 mm	± 0,05 mm
Area weight sheet	0,5 kg/m ²	± 10 %
Area weight geotextile	110 g/m ²	± 5 %
Standard width	1,00 og 2,00 m	+ 1 % / - 0 %
Standard length	15 m	+ 1 % / - 0 %

¹⁾ Measured according to EN 1848-2 and EN 1849-2

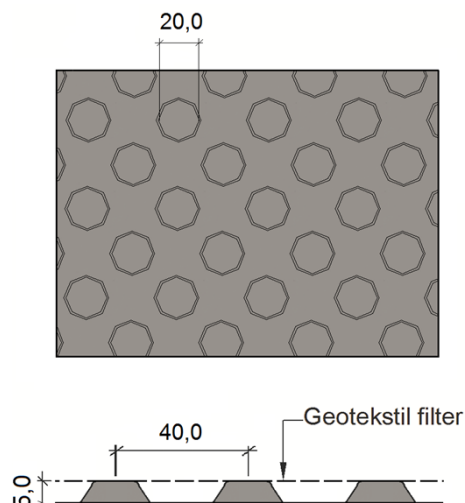


Fig. 1
 Icopal Fonda Geoplex drainage membrane

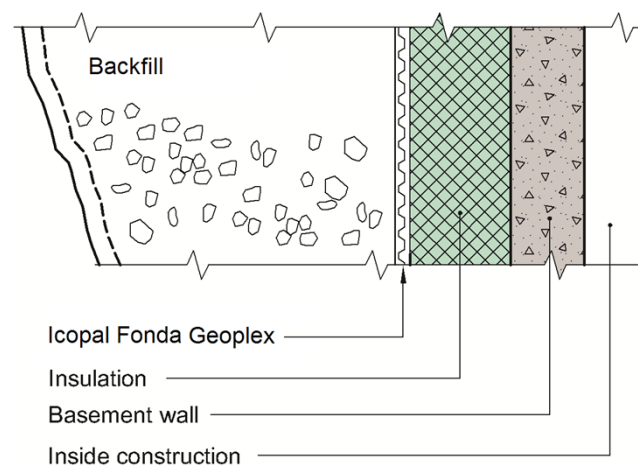


Fig. 2
 Icopal Fonda Geoplex used on insulated basement wall. For quicker dry out of the basement wall it is recommended to place the membrane outside the vapour open insulation as e.g. EPS, see also SINTEF Building Research Design Guide 523.111

Table 2
Product characteristics of fresh material for Icopal Fonda Geoplex

Property	Test method NS-	DoP ¹⁾	Control limit ²⁾	Unit
Water tightness	EN 1928:2000 (A)	Tight	Tight	-
Water vapour resistance	EN 1931:2000	-	1×10^{12} 200	m ² sPa/kg m (equivalent air layer thickn., s _d)
Resistance to tearing (nail shank) L: T:	EN 12310-1:1999	> 550 > 550	> 550 > 550	N
Tensile strength L: T:	EN 12311-2 (A):2010	> 550 > 550	> 550 > 550	N/50 mm
Elongation L: T:	EN 12311-2 (A):2010	> 200 > 200	> 200 > 200	%
Puncturing - Impact +23 °C - Static load	EN 12691:2006 ³⁾ EN 12730:2001 ³⁾	300 -	> 300 >20	mm kg
Deformation under load measured after 60 h	EN 13967:2012, Annex B	-	1 mm deform. with 250 kN/m ²	mm and kN/m ²

¹⁾ The manufacturers declaration of performance, DoP

²⁾ Control limit shows values the product has to satisfy during internal factory production control and audit testing.

³⁾ Tested on relevant underlay. Here EPS.

Tabell 3
Product specification for associated installation components for Icopal Fonda Universal

Component	Material type	Description	Measures
Fastening plugs with nails	Hardened, el. galvanised steel nails. PEL (Low density polythene) studs.	Fitting plugs and nails for fastening membrane to external walls or to roofing boards.	Diameter: 3.0 mm Length: 30 mm for concrete or roofing boards Length: 60 mm to light weight concrete
Edge profile KL6	High Density Polyethylene, HDPE	Edge profile for closing top edge of membrane at ground level. Fastened with steel nails.	Length: 2 m
Edge profile	HDPE	Edge profile for walls with 50mm outer insulation	Length: 2 m

3. Fields of application

Icopal Fonda Geoplex is used as drainage, water proofing and capillary breaking layer on the outside of walls against the ground, see fig. 2.

Excavated soil may be used as backfill, and drainage aggregates as backfill is not necessary. Excavated soil should not be frost susceptible.

4. Properties

Material properties

Icopal Fonda Geoplex material properties are shown in table 3.

Properties related to fire

Icopal Fonda Geoplex is not classified according to EN 13501-1.

Durability

Icopal Fonda Geoplex has been tested and assessed to have acceptable durability for its intended use.

5. Environmental aspects

Substances hazardous to health and environment

The product contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Effect on soil, surface water and ground water

The leaching properties of the product are evaluated to have no negative effects on soil or ground water.

Waste treatment/recycling

The product shall be sorted as residual waste on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

No environmental declaration (EPD) has been worked out for the product.

6. Special conditions for use and installation

Icopal Fonda Geoplex shall be applied with the studs and geotextile facing away from the wall, and be rolled out along the length of the wall. Installation shall start at the bottom of the wall. Horizontal joints should have an overlap of 120 mm, and vertical joints 500 mm.

The membrane is fastened with plugs every 250 mm along the top edge. Edge profile is applied at the top, fixed with nails. Plugs are fastened with 6 mm pre-bored holes in concrete and 5.5 mm holes in expanded clay aggregate blocks.

Drain pipes must be installed outside the wall if the soil is not self-draining. Extra measures like establishing drain ditches or special ground slope must be applied if there is a risk for large exposure from surface water.

Other conditions:

- Roof water shall be directed away from the building on ground or in drain pipes
- Ground surface shall slope away from the building
- Backfilling shall be done without damaging the membrane or the wall insulation
- Basement wall must be designed to resist horizontal ground pressure

Icopal Fonda Geoplex membrane shall otherwise be installed according to the recommendations given in SINTEF Building Research Design Guide 514.221.

Transport and storage

The rolls shall be stored and transported standing vertically on pallets, protected from sunlight. Pallets may be stacked in two levels, providing the stacks are staggered. Caution must be shown when stacking pallets.

7. Factory production control

Icopal Fonda Geoplex is produced by Oldroyd AS in Norway for Icopal AS.

The holder of the approval is responsible for the factory production control in order to ensure that the product is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

Icopal AS; Fjellhamar has a quality management system certified of Det Norske Veritas according to EN ISO 9001. Certificate No. 95-OSL-AQ-6275

Oldroyd AS has a quality management system certified of Teknologisk Institutt according to EN-ISO 9001. Certificate No. 213.

8. Basis for the approval

The approval is based primarily on the verification of properties documented in the following reports:

- SP Swedish Testing and Research Institute, report F609470, dated 2006-12-05. Test of Damp Proof Membrane.
- Swedish Testing and Research Institute, report F515377, dated 2006-01-21. Test of three Damp Proof Membranes.
- SINTEF Byggforsk, vurdering av drensøsning – Icopal Geoplex. Oppdragsrapport O 21772
- SINTEF Building and Infrastructure, report 3D076201, dated 16.02.2010

9. Marking

The rolls shall be marked with name of producer, name of product and date of production.

Icopal Fonda Geoplex is CE marked in accordance with EN 13967 and EN 13252.

The approval mark for SINTEF Technical Approval No. 2518 may also be used.



Approval mark

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF Building and Infrastructure

Hans Boye Skogstad
Approval Manager