

SINTEF Building and Infrastructure confirms that

Icopal Fonda Special

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 Special is a 0.5 mm thick damp-proof membrane made in polypropylene. The membrane has a pattern of crossing grooves, see fig. 1. Total height of the membrane is 2.0 mm. The membrane has flat edges for overlapping. Measures and tolerances are shown in table 1.

Supplementary products are shown in table 3.

Table 1
 Measures and tolerances for Icopal Fonda Universal

| Property | Measure ¹⁾ | Tolerance |
|--------------------|-----------------------|---------------|
| Thickness | 0,5 mm | ± 0,05 mm |
| Spec. Weight | 0,5 kg/m ² | ± 10 % |
| Total height | 2 mm | ± 5 % |
| Stand. Roll width | 1,28 + 2,28 m | + 1 % / - 0 % |
| Stand. Roll length | 10 + 20 m | + 1 % / - 0 % |

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

3. Fields of application

Icopal Fonda Special is used as a capillary breaking and damp proofing layer applied on concrete floors or decks under floating floors made of board, parquet, floor laminates, levelling compounds or screeds. The principle floor construction is shown in fig. 2. The membrane can be used in new construction or in refurbishment work.

If there are problems with damp or emissions from the ground, systems with a ventilated air gap between the concrete and the membrane should be used.

Icopal Fonda Special shall not be used as a waterproof membrane in bathrooms.

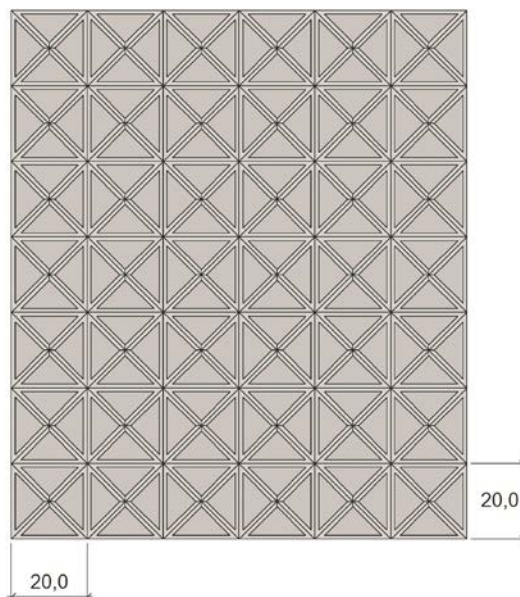


Fig. 1
 Icopal Fonda Special with. Total height 2 mm.

4. Properties

Material properties

Icopal Fonda Special product characteristics are shown in table 2.

Properties related to fire

Icopal Fonda Special is not classified according to EN 13501-1. When it is used in a floor-system, the divisions must follow fire cell divisions.

Durability

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

Table 2
Product characteristics of fresh material for Icopal Fonda Special

| Property | Test method | DoP ¹⁾ | Control limit ²⁾ | Unit |
|-----------------------------------------------|------------------------------------------------------------|-------------------|----------------------------------------------|--------------------------------------------------------------------------|
| Water tightness | EN 1928:2000 (A) | Tight | Tight | - |
| Water vapour resistance | EN 1931:2000 | - | 2x10 ¹¹ 40 | m ² sPa/kg m (equiv. air layer thickness, s _d) |
| Tensile strength L: T: | EN 12311-2 (A):2010 | > 400 > 350 | > 400 > 350 | N/50 mm |
| Elongation L: T: | EN 12311-2 (A):2010 | > 25 > 25 | > 25 > 25 | % |
| Shear resistance in joint | EN 12317-2:2000 | - | > 6 | N |
| Puncturing Impact at/+23 °C Static load | EN 12691:2006 ³⁾ EN 12730:2001 ³⁾ | > 250 - | > 250 >20 | mm kg |
| Deformation under load measured after 60 h | EN 13967:2012, Annex B | - | 0,4 mm deform. with 200 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 underlay for roof of wooden plates.

Table 3
Product specification for associated installation components for Icopal Fonda Special

| Component | Materialtype | Description | Measures |
|--------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------|
| Joining tape | Butyl-rubber | Overlap jointing (when membrane is used on floors) | Width / thickness: 30 mm / 1,0 mm or 50 mm / 1,5 mm Length: 5 m, 10 m or 20 m |
| Multitape Butyl | Butyl-rubber on HDPE foil, single sided glueing | Overlap jointing (when membrane is used on floors) | Width / thickness: 80 mm / 1,0 mm Length: 20 m |

Sound insulation

Weighted impact sound pressure reduction ΔL_w according to ISO 717/2 is 16dB for floating floors with 14 mm parquet on Icopal Fonda Special. Such floors installed on concrete decks with minimum thickness 180 mm satisfy Class C in NS 8175, except for residential housing.

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 indoor environment

The product is not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health.

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

Load capacity

Possible deformations at point loads must be checked if the membrane is used under particularly large floor loads.

Moisture conditions

The building is presumed to have a normal indoor climate as long as special measures are not assessed.

Icopal Fonda Special may be installed independently of the moisture content in the concrete below, but shall not be used in locations where free water can occur.

Special considerations at refurbishment

In rehabilitation work wooden bottom sills with moisture content exceeding 15 % weight or attacked by fungus must be replaced and protected from moisture in the concrete with a capillarity breaking layer. All remains of glue and floor covering must be removed completely, and the floor must be disinfected if there has been mould growth.

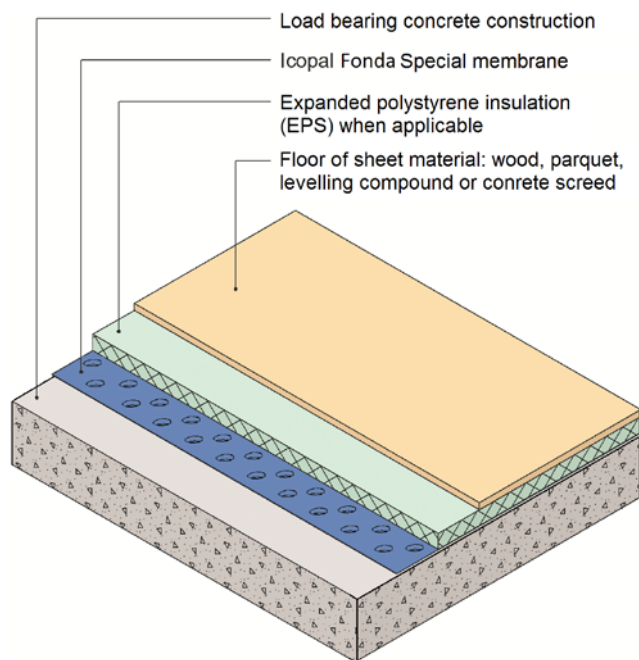


Fig. 2
Floor construction with Icopal Fonda Special

Thermal insulation

Floors may be insulated with polystyrene sheets between the damp-proof barrier and the floating floor. See fig. 2. When board materials are installed over insulation it is required to use XPS (extruded polystyrene) or EPS (expanded polystyrene) sheets with a resistance to compression of at least 200 kN/m² (CS(10)200). A thin fibre cloth or equivalent should be laid between the insulation and flooring to avoid squeaking. It is assumed that the use of XPS or EPS is in accordance with the recommendations in the SINTEF Building Research Design Guide 520.339

Joints and penetrations

Lengthwise joints are taped at overlaps with self-adhesive jointing tape. Transverse joints are made as butt joints with the tape across the top of the joint.

Two rings of jointing rope are used for sealing joints between the concrete floor and penetrating pipes and ducts, after applying a dust-binding primer.

Partition walls

Non load-bearing walls can be installed directly on the membrane.

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

The product is produced by Siplast-Icopal in France 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

Siplast-Icopal has a quality management system certified of Bureau Veritas Certification France according to EN-ISO 9001. Certificate No. FR004371-1.

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 97M22008 dated. 12.08.1997 (typetesting).
- Nemko Trondheim, Report 974404532, dated 04.1997 (sound properties)
- SINTEF Building and Infrastructure, report 3D076201, dated 16.02.2010
- SINTEF Building and Infrastructure, report 102000866-2-2016, dated 30.03.2016 (product properties)

9. Marking

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

The product is CE marked in accordance with EN 13967

The approval mark for SINTEF Technical Approval No. 2206 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

A handwritten signature in blue ink that reads "Hans Boye Skogstad".

Hans Boye Skogstad
Approval Manager