



Technical Approval

SINTEF Building and Infrastructure confirms that

Iso-Drain 8 moisture barrier

meets the provisions regarding product documentation given in Norwegian building regulations, with properties, fields of application and conditions as stated in this document

1. Holder of the approval

Interplast Kunststoffe GmbH
Heinrich-Schickhardt-Str. 1
DE-72221 Haiterbach, Germany
www.interplast.de

2. Manufacturer

Interplast Kunststoffe GmbH
Heinrich-Schickhardt-Str. 1
DE-72221 Haiterbach, Germany
www.interplast.de

3. Product description

Iso-Drain 8 is a black sheet material made of 0.5 mm high density polyethylene (HDPE). The product is also sold under the brand name Plastofol. The sheets have round studs that form an 8 mm cavity between the sheets and the substructure, see Fig. 1. Product specifications are shown in table 1. Supplementary components of the moisture barrier system are shown in table 2.

Table 1
Measures, weight and tolerances for Iso-Drain 8

Designation	Value
Thickness	0.5 mm \pm 0.05 mm
Weight	0.5 kg/m ² \pm 10 %
Total height	8 mm
Standard width	1.00m / 1.50m / 2.00m / 2.40m \pm 0.01 m
Standard roll length	20 m \pm 0.05 m

4. Fields of application

Floors

Iso-Drain 8 can be used as a moisture barrier in floating floor constructions on concrete, as illustrated in Fig. 2. The sheet may be used in floors with a maximum imposed load equivalent to the permitted load for residential and office buildings in NS-EN 1991-1-1:2002+NA:2008. For higher load categories the load capacity for the floor construction should be controlled.

Iso-Drain 8 cannot be used as a waterproofing sheet in bathrooms.

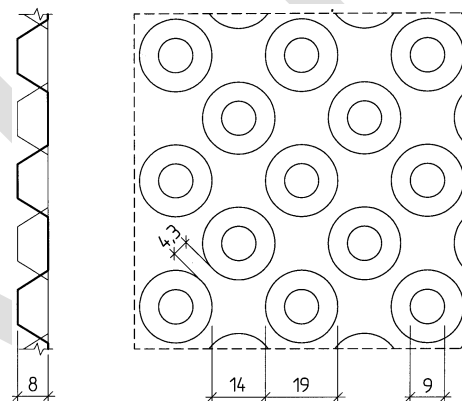


Fig. 1.

Iso-Drain 8 moisture barrier

The studs may also be positioned parallel to the sheet edges.

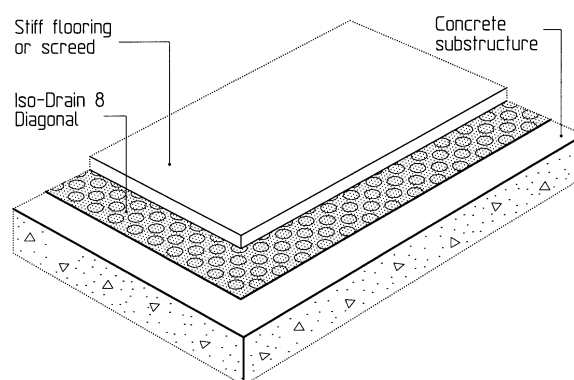


Fig. 2

Iso-Drain 8 used in a floating floor construction

External walls

Iso-Drain 8 can be used as a water repellent and capillary breaking sheet on the outside of external basement walls, as shown in Fig. 3.

Roofs

Iso-Drain 8 can be used to protect bituminous roofing layers in roofs with grass turf as top layer, see Fig. 4.

Table 2

Product description of the supplementary components for Iso-Drain 8

Component	Material	Description	Dimensions
Wall/floor connection	HDPE	Sheet partly with studs and partly flat sheets	Thickness: 0.5 mm Width: 180 mm Length 10 m
Joint strip	HDPE	Strip for jointing sheets in floors	Thickness: 1 mm Width: 120 mm Length: 20 m
Sealing tape	Butyl rubber	Adhesive tape for fixing joint strip in floors	Thickness: 1 mm Width: 30 mm Length: 30 m
Sealing rope	Butyl rubber	Adhesive band for sealing between Iso-Drain 8 sheets and concrete floor	Diameter: 10 mm Length: 6 m
Fixing	Zink plated carbon steel	Fixing with washer (basement wall, roof)	Diameter: 3.5 mm Length: 35 mm
Top edge profile	HDPE	Edge profile to seal top edge between Iso-Drain 8 and basement wall	Thickness: 2 mm Height: 8 mm and 80 mm Width: 46 mm Length: 2 m and 2.5 m

Table 3

Product properties of fresh material for Iso Drain 8

Property	Test method	Control limits ¹⁾	Unit
Water tightness	NS-EN 1928:2000 (A)	Tight	-
Water vapour transmission	NS-EN 1931:2000	1×10^{12} $s_d = 200$	$m^2 s Pa/kg$ m (equivalent air layer thickness)
Resistance to tearing (nail shank)	NS-EN 12310 -1:1999	> 300	N
Resistance to puncture - by impact at +23°C - by static loading	NS-EN 12691:2006 (A) NS-EN 12730:2001 (A)	> ??? 20	mm kg
Tensile strength	EN 12311-2 (A):2000	> ???	N/50 mm
Elongation	EN 12311-2 (A):2000	> ??	%
Shear resistance of joints ²⁾	NS-EN 12317-2:2000	> ??	N
Deformation under load ³⁾	NS-EN 13967:2004, Annex B	≤ 20 % ???	%/mm kN/m ²

¹⁾ The stated values are control limits for the internal production control and the supervising product control. If nothing else is mentioned, the control limits concern both direction of the product where relevant.

²⁾ The values are results from typetesting.

³⁾ Measured after 60 hours

5. Properties

Material properties

Table 2 shows material properties determined by type-testing, annual control testing, initial testing for CE-marking and finish product testing in the production.

Safety in case of fire

The product has to be regarded as combustible. The material fulfills the requirements for class B2 according to the german DIN 4102.

Durability

The product has been tested for its durability. Tests were performed after UV ageing, after it has been aged in alkalish environment and after it was aged in combined climate simulation and heat chamber. All performed tests afterwards had satisfactory results.

6. Environmental aspects

Chemicals hazardous to health and environment

Iso-Drain 8 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

Iso-Drain 8 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.

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.

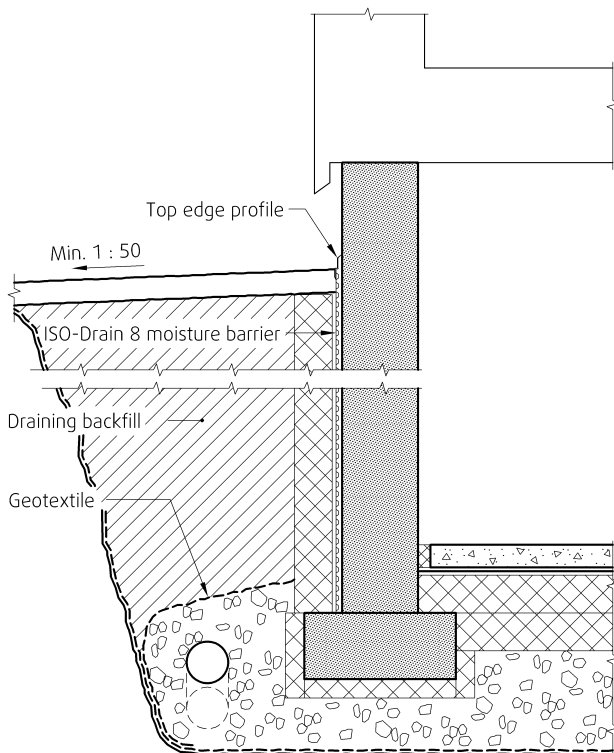


Fig. 3
Iso-Drain 8 Diagonal used in external basement wall with thermal insulation.

Waste treatment/recycling

Iso-Drain 8 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 Iso-Drain 8.

7. Special conditions for use and installation

Floors

Iso-Drain 8 can be installed independently of the moisture content of the concrete substructure.

Joints are made with butted ends and shall be sealed with joint strips fixed to the sheet with sealing tape on both sides of the joint.

Non-load bearing, light-weight partition walls may be installed on top of the sheets.

External basement walls

Iso-Drain 8 shall be installed with the studs against the wall. The joint overlaps shall be 150 mm for horizontal joints and 500 mm for vertical joints. Fixings are placed every 250 mm along the upper edge.

The sheets should cover both wall and foundations as illustrated in Fig. 3, with the top edge covered by a profile above ground level. The sheets shall be protected by a draining layer.

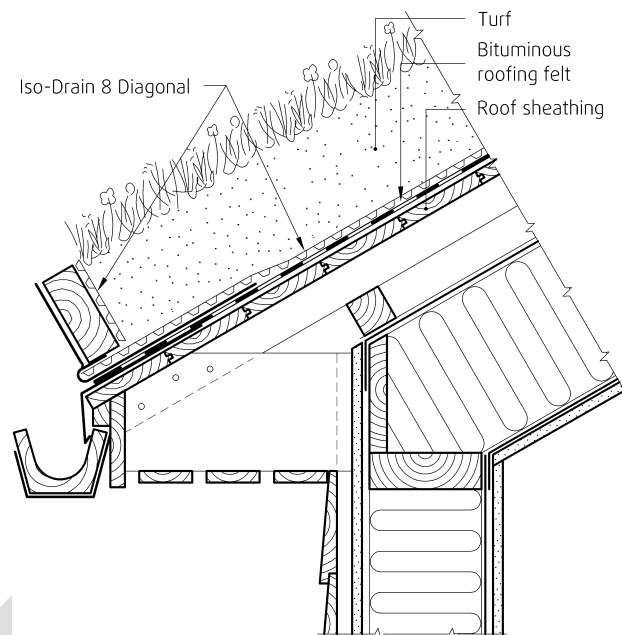


Fig. 4
Iso-Drain 8 Diagonal used under bituminous roofing layer in roof with turf covering.

Iso-Drain 8 shall be installed according to the principles in the SINTEF Building Research Design Sheet 514.221 Moisture protection of building structures (in Norwegian).

Roofs with turf covering

On roofs with turf covering Iso-Drain 8 shall be installed with the studs oriented towards the bituminous roofing layer, as shown in Fig. 4. Fixings shall be applied along the upper edge; spaced c/c 200 mm for 1 m wide sheets and c/c 100 mm for 2 m wide sheets. Joint overlaps shall be min. 300 mm for roof slopes less than 25°, and min. 250 mm for steeper roofs. Overlaps at end joints shall be min. 400 mm.

Iso-Drain 8 shall be installed according to the principles shown in SINTEF Building Research Design Sheet 544.803 Turf roofing.

8. Factory production control

Iso-Drain 8 is subject to supervisory factory production and product control according to contract between SINTEF Building and Infrastructure and Interplast Kunststoffe GmbH concerning Technical Approval. The manufacturer Interplast Kunststoffe GmbH has a quality management system certified by TÜV Rheinland Cert GmbH to EN ISO 9001:2008, certificate No. 01 100 061081/03.

9. Basis for the approval

The approval is based on type-testing and verification of product properties documented in the following reports:

- SINTEF Building and Infrastructure Report No. 102000900-2 dated 20.06.2014 Testing of several properties.

- SP Technical Research Institute of Sweden. Report No. 3F016014 B dated 11.12.2013 Annual control testing.
- SP Technical Research Institute of Sweden. Report No. FX222536 B dated 17.12.2012 Annual control testing.
- SP Technical Research Institute of Sweden. Report No. F208134 B dated 11.02.2003 Testing for type approval.
- Laboratory for Examinations of Plastics – Dr. Reiner Düren. Test reports on compression and tensile strength, dated 22.07.2002 and 30.07.2002.
- Ostthüringische materialprüfgesellschaft für Textil und Kunststoffe GmbH. Determination of burning behaviour according to DIN 4102 part 1 B2, dated 08.10.2003.

10. Marking

Iso-Drain 8 shall be marked with the name of the product, the manufacturer and the date of production or a traceable production number. Marking may be done on the sheets and/or the packaging. The approval mark for SINTEF Technical Approval No. 2164 may also be used.



Approval mark

11. 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

12. Technical management

Project manager for this approval is Holger Halstedt, SINTEF Building and Infrastructure, dep. Building Materials and Structures, Trondheim

for SINTEF Building and Infrastructure

!!!Without original signature of the approval manager not valid!!!

Hans Boye Skogstad
Approval Manager