SINTEF Technical Approval

TG 2382

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Revised: 28.09.2026
Amended:
Valid until 01.10.2031
Provided listed on
www.sintefcertification.no

SINTEF confirms that

DELTA® MS Black moisture barrier

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

Dörken GmbH & Co KG
Wetterstrasse 58
58313 Herdecke, Germany
www.doerken.de

2. Product description

DELTA® MS Black moisture barrier is a dimple sheet made of high-density polyethylene (HDPE) with a density of approximately 950 kg/m³. The sheets are black and have round studs forming out a 7,5 mm cavity between the sheet itself and the substructure, see also Fig. 1.

The dimple sheet supplies with measures, weight and tolerances as shown in Table 1.

Product specifications and supplementary components are shown in Table 3.

Tabell 1
Measures, weight and tolerances for DELTA® MS Black moisture barrier

Property	Test method EN	Value	Tolerance
Material thickness	1849-2	0,45 mm	± 0,05 mm
Weight	1849-2	0,54 kg/m2	± 10 %
Standard width	1848-2	1,0/1,5/2,0/2,4 m	± 1 %
Standard roll length	1848-2	20 m	± 1 %

3. Fields of application

External basement walls
DELTA® MS Black moisture barrier can be used in buildings in hazard-classes 1-6 in fire-classes 1-3 as a water repellent, capillary braking and draining basement wall plate on the outside of external basement walls as shown in figure 2.

Turf roofs
DELTA® MS Black moisture barrier can be used in free-standing small house in hazard-class 4 in fire-class 1 as protection of the watertight roofing membrane with turf on top to avoid penetration of roots and to ensure the drainage between watertight roofing and turf roofing. See also figure 3 and 4.

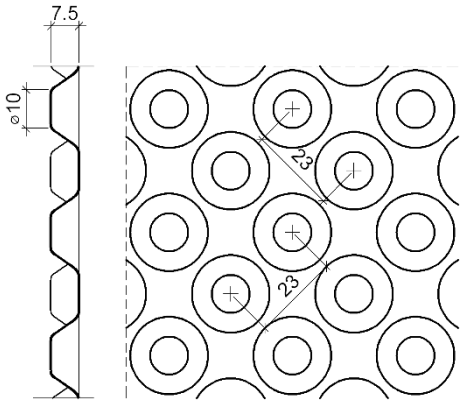


Fig. 1
Layout of DELTA® MS Black moisture barrier. Measures in mm.

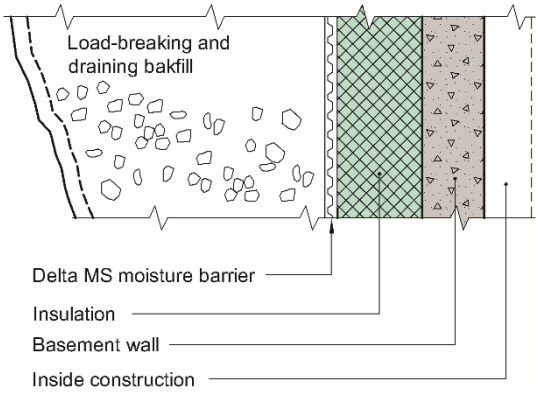


Fig. 2
DELTA® MS Black moisture barrier used on insulated external basement wall. For faster drying process of the basement wall it is recommended to place DELTA® MS Black outside the vapour open insulation as e.g., EPS, see also SINTEF Building Research Design Sheet 523.111 Yttervegger mot terreng. Varmeisolering og tetting.

Table 2
Product properties for fresh material of DELTA® MS Black moisture barrier

Property	Test method EN	DELTA® MS Black		Unit
		DoP1)	Control limit2)	
Water tightness 2 kPa/24 hours	1928	Tight	Tight	-
Resistance to tearing L T	12310-1	≥ 300 ≥ 320	≥ 300 ≥ 320	N
Tensile strength L T	12311-2 (A)	> 370 > 340	≥ 370 ≥ 340	N/50mm
Elongation L T	12311-2 (A)	> 26 > 22	≥ 26 ≥ 22	%
Water vapour resistance sd -value	ISO 12572	-	414	m
Resistance against puncturing: - impact at 23oC - static loading 3)	 12691 12730	 ≥ 400 ≥ 20	 ≥ 400 ≥ 20	 mm kg
Deformation under load after 60 h	13967	- -	≤ 20 50	% kN/m2

1) Manufacturers Declaration of Performance, DoP
2) The control limit specifies the minimum acceptable value for the manufacturer's internal factory production control and audit testing
3) Tested on relevant substrate (concrete, EPS)

Tabell 3
Supplementary components for installing DELTA® MS Black moisture barrier

Component	Material type	Description	Dimensions
DELTA®-FLEXX-BAND	Butyl rubber tape with backing of PP fleece	Rubber tape for sealing sheet overlaps on turfed roofs, in particular on roofs with low slope.	Width: 100 mm Length: 10 m
DELTA®-THAN	Special rubber glue	Additional sealing of critical overlaps on turfed roofs	Cartridge, 310 ml

4. Product performance

Material properties
Table 2 shows product properties for DELTA® MS Black moisture barrier.

Reaction to fire
Reaction to fire class in accordance with EN 13501-1 for DELTA® MS Black moisture barrier, is not determined.

Durability
DELTA® MS Black moisture barrier is assumed to have satisfactory durability in physical contact with concrete- and mortar materials based on testing before and after accelerated alkali climate-ageing (NT Poly 161) in laboratory.

5. Environmental aspects

Substances hazardous to health and environment
DELTA® MS Black moisture barrier 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 DELTA® MS Black moisture barrier.

6. Conditions of use

Design considerations regarding safety in case of fire
DELTA® MS Black moisture barrier need to be separated at fire cell limiting constructions in a way that fire spread is avoided and the fire cell limiting function is ensured.

DELTA® MS Black moisture barrier need to be covered completely of soil or turf. See also the principles shown in the following SINTEF Building Research Design Sheets: 520.339 *Bruk av brennbar isolasjon i bygninger* for covering solutions.

External basement walls
DELTA® MS Black moisture barrier should be installed with the studs towards the wall, using 150 mm overlap at horizontal joints and 500 mm overlap at vertical joints. The moisture barrier needs to be fixed with nails spaced c/c 250 mm along the upper edge, where an edge profile is installed.

DELTA® MS Black moisture barrier should cover both wall and foundations, with the top edge placed slightly above ground level.

DELTA® MS Black moisture barrier shall avoid uncontrolled water infiltrating to thermal insulation and the basement construction. Draining fill masses directly nearby the moisture barrier and draining tubes under bottom level of the basement are necessary to drain water appropriately fast away from the basement construction.

The outside used insulation material should be vapour open, to enable the dehydration of the basement construction.

DELTA® MS Black moisture barrier shall be used in accordance with the principles shown in the following SINTEF Building Research Design Sheets:

- *514.221 Fuktsikring av konstruksjoner mot grunnen*
- *523.111 Yttervegger mot terreng. Varmeisolering og tetting*

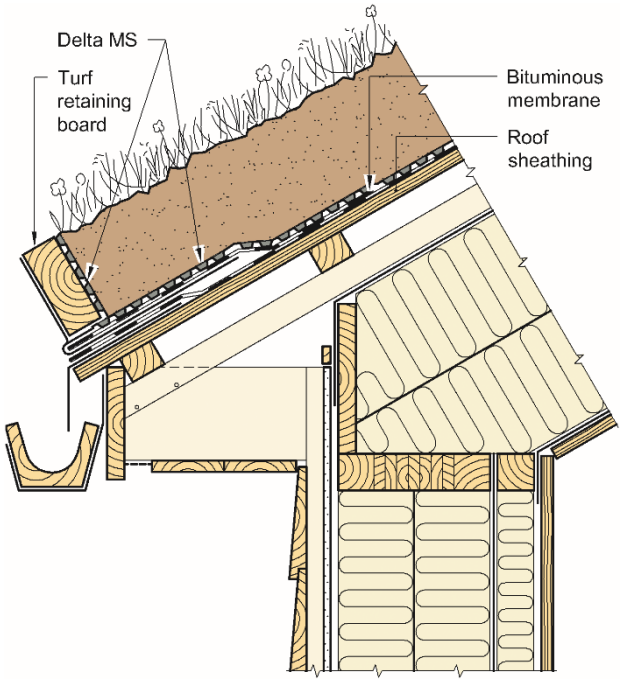


Fig. 3
Use of DELTA® MS Black moisture barrier on turf roof to ensure drainage of water between moisture barrier and roofing membrane.

Turf roofs
DELTA® MS Black moisture barrier used in turf roofs shall be installed with the studs downwards. The upper, structured surface can avoid at lower roof slopes, that the turf slides down. For bigger roof slopes the turf needs to be reinforced in addition.

Between DELTA® MS Black and the roofing layer, the cavity will avoid that water can be dammed on top of the roofing layer. This double layer system will make it presumably that the durability of the construction over buildings live time is given. The principle is illustrated in Fig. 3 and 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. Overlap widths perpendicular to the roof slope shall be minimum 250 mm for slopes ≥ 25°, and minimum 300 mm for roofs with a lower slope. End overlaps parallel to the roof slope shall be minimum 400 mm.

During installation the dimples of the upper sheets shall fit into the studs of the lower sheets to increase the safety for water infiltration of the overlap.

The use of DELTA® MS Black shall otherwise be in accordance with the principles shown in SINTEF Building Research Design Sheet:

- *544.803 Torvtak*

Transport and storage
DELTA® MS Black moisture barrier is delivered as a roll protected with wraping. The product can be stored exposed to weather.

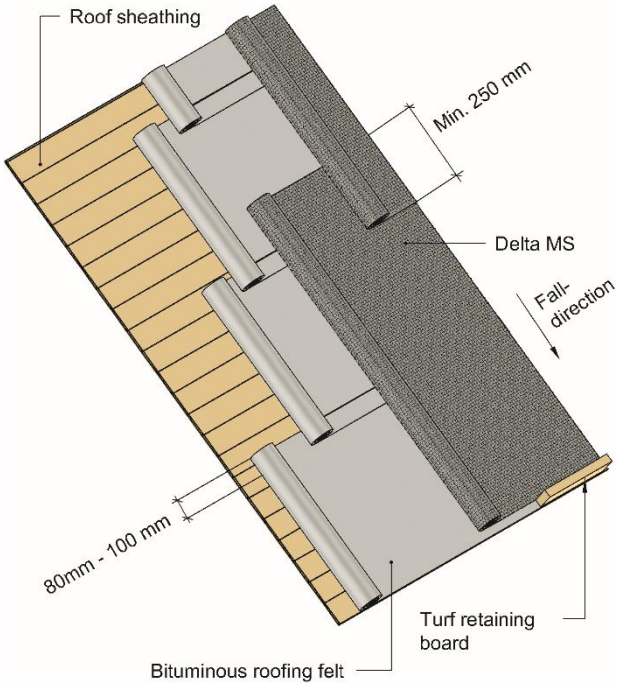


Fig. 3
Mounting of DELTA® MS Black moisture barrier on turf roof.

7. Product and factory production control
DELTA® MS Black moisture barrier is produced by Dörken GmbH & Co KG, Wetterstrasse 58, 58313 Herdecke, Germany.

The holder of the approval is responsible for maintaining the factory production control to ensure that DELTA® MS Black moisture barrier is manufactured in compliance with the preconditions upon which this approval is based.

The manufacturing of the DELTA® MS Black moisture barrier and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

The Quality management system of the manufacturer is certified of GUTcert GmbH according to EN ISO 9001, certificate no. Q- 25- 26175-EN.

The environmental management system of the manufacturer is certified by GUTcert GmbH according to EN ISO 14001, certificate no. U-25-26175-EN.

8. Basis for the approval
The DELTA® MS Black moisture barrier characteristics are documented in reports issued by independent bodies. The technical documentation serves as the basis for SINTEF's product assessment with respect to the product standard EN 13967, the guidelines for SINTEF Technical Approval, and recommendations as outlined in SINTEF Building Research Design Guides.

9. Marking

Marking of each roll shall in minimum include manufacturers name, product name/ quality and time of production. DELTA® MS Black moisture barrier is CE-marked in accordance with EN 13967.

The approval mark for SINTEF Technical Approval TG 2382 may also be used**.**

10. Liability

The holder/manufacturer has sole product liability according to current law. Claims can only be made against SINTEF under general law or other special grounds.

for SINTEF



Ola Asphaug
Approval Manager