SINTEF Technical Approval

TG 2382

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Amended: 09.04.2026
Valid until 01.10.2026

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.

This 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. Se also figure 3 and 4.

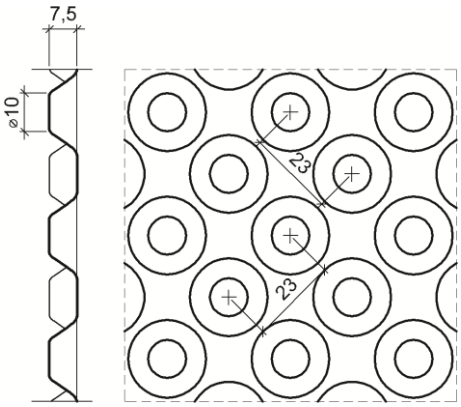

Fig. 1
Layout of DELTA® MS Black moisture barrier. Measures in mm.

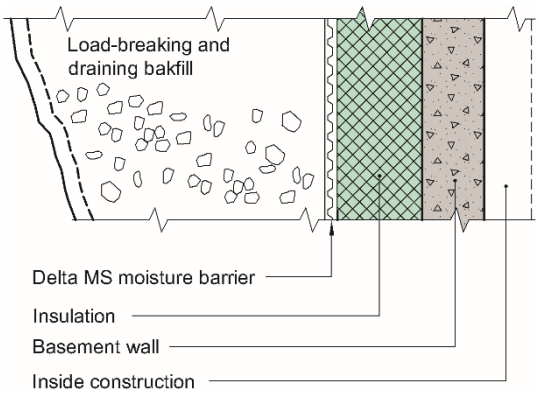

Fig. 2
DELTA® MS Black moisture barrier used on insulated external basement wall. For faster drying process of the basement wall it is recommended to place DELTA® MS Black outside the vapour open insulation as e.g., EPS, see also SINTEF Building Research Design Sheet *523.111 Yttervegger mot terreng.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

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

Property	Test method EN	DELTA® MS Black		Unit
		DoP[1)]	Control limit[2)]	
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 s_d -value	ISO 12572	-	414	m
Resistance against puncturing: - impact at 23°C - 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)] Control limit shows values, product has to satisfy during 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. Properties

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. Special conditions for use and installation

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 fuktsperre 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 løsninger til tildekking.

External basement walls
DELTA® MS Black moisture barrier is to install with the studs towards the wall, using 150 mm overlaps at horizontal joints and 500 mm overlaps 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 / tetting*

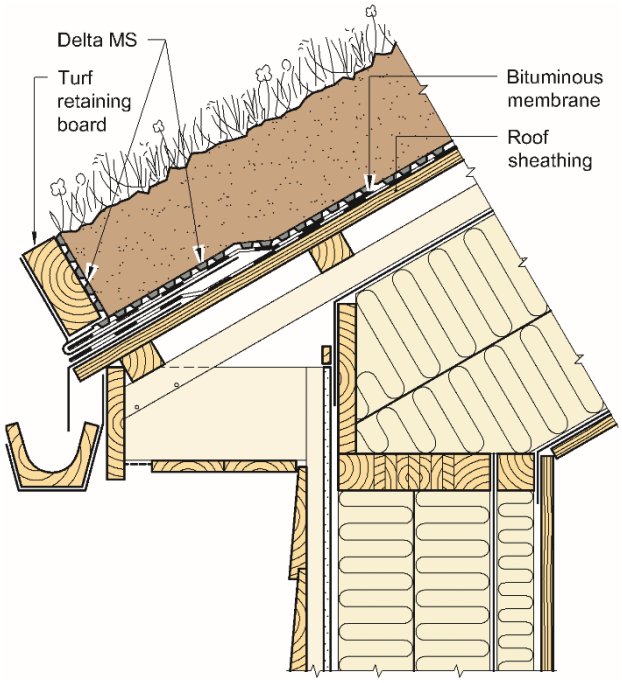

Fig. 3
Use of DELTA® MS Black moisture barrier on turf roof to ensure drainage of water between moisture barrier and roofing membrane.

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 pitch. End overlaps parallel to the roof slope shall be minimum 400 mm.

During installation the studs 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 Turf roofing.*

Transport and storage
supplies as roll protected with wraping. The product can be stored exposed to weather.

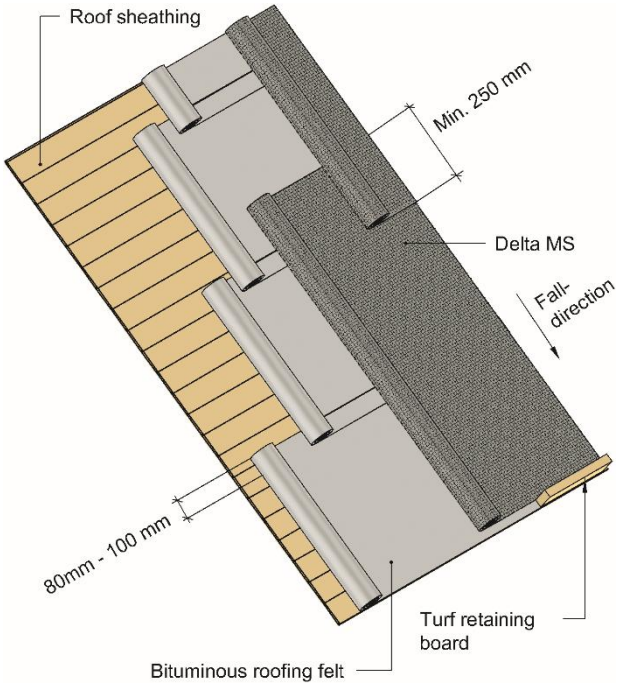

Fig. 3
Mounting of DELTA® MS Black moisture barrier on turf roof.

7. Factory production control
DELTA® MS Black moisture barrier is produsedby Dörken GmbH & Co KG, Wetterstrasse 58, 58313 Herdecke, Germany

The holder of the approval is responsible for the factory production control in order to ensure that DELTA® MS Black moisture barrier is produced in accordance with the preconditions applying to this approval.

The manufacturing of DELTA® MS Black moisture barrier is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

The Quality management system of the manufacturer is certified of TÜV Rheinland Cert GmbH according to EN ISO 9001, certificate no. 01 100 041012/03.

The environmental management system of the manufacturer is certified by TÜV Rheinland Cert GmbH according to EN ISO 14001, certificate no. 01 104 042109/03.

8. Basis for the approval
The evaluation of DELTA® MS Black moisture barrier is based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given 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 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

Hans Boye Skogstad
Approval Manager