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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-09/0156 of 18/12/2015

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	Mira 4400 Multicoat Watertight covering kit
Product family to which the above construction product belongs:	Liquid applied watertight covering kit for wet room floors and walls
Manufacturer:	Mira Byggeprodukter A/S Egegaardsvej 2 DK-4621 Gadstrup Telephone +45 46 19 19 46 Telefax +45 46 19 20 21 Internet www.mira.eu.com
Manufacturing plant:	Mira Byggeprodukter A/S Egegaardsvej 2 DK-4621 Gadstrup
This European Technical Assessment contains:	10 pages including 2 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	Guideline for European Technical Approval ETAG No 022 Watertight covering kits for wet room floors and/or walls, Part 1: Liquid applied coverings with or without wearing surface, Edition April 2007, used as European Assessment Document (EAD).
This version replaces:	The ETA with the same number issued on 2014-07-07

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product
General
Mira 4400 Multicoat is a liquid applied one component membrane kit which serves as a watertight covering for wet room floors and walls beneath a wearing surface.

The kit consists of the following components:

Primer
Mira 4410 Vapourstop, which is a polymer dispersion moisture barrier, for use on moisture sensitive substrates. Mira 4410 Vapourstop is intended to have a significant additional function in limiting the water vapour permeability of the kit

Membrane
The membrane is a one component system consisting of Mira 4400 Multicoat liquid membrane on polymer dispersion base.

Reinforcement
The reinforcement is mira 4526 safecoat strimmel, which is a elastic jointing tape used to bridge cracks and joints or mira safecoat fiberdug, and mira 4564 seal band, which is a self-adhesive tape used in connection between the floor and the wall, in corners and between the floor and the wall, in corners (mira seal corner) and around penetrations (mira seal manchet). For gullies the mira 4550 seal manchet, which is a self-adhesive collar and mira 4592 seal manchet, mira 4596 seal manchet and 4594 seal manchet, is used. The reinforcement is not intended to cover the entire floor and wall covering, but is used over joints and in corners and around penetrations and floor gullies.

Additionally, the kit is supplied with Mira 4500 Vapour Mat, which is to be mounted between two layers of the liquid membrane. The sheet is intended to further add to the vapour resistance of the kit.

Adhesives
Adhesives covered by this ETA is: Mira z-fix excellent, Mira 3110 Unifix and Mira 3130 Superfix

Kit
The kit is constructed as follows:

- a layer of minimum 100 g/m^2 Mira 4410 Vapourstop (only where additional moisture barrier is needed depending on substrate and required characteristics)
- reinforcement of in- and outgoing corners in walls, over joints or cracks in the substrate, around pipe penetrations, floor gullies and along the connection between floor and wall as described under the heading **Reinforcement**
- minimum 1000 g/m^2 Mira 4400 Multicoat distributed evenly over the surface in at least two applications
- where relevant the Mira 4500 Vapour Mat is installed between the two layers og Mira 4400 Multicoat
- a layer of ceramic tiles adhered to the kit with cement based tile adhesive (Mira z-fix excellent, Mira 3110 Unifix or Mira 3130 Superfix).

Note that the above mentioned amount of Mira 4400 corresponds to a wet film thickness of 0,6 mm corresponding to a dry film thickness of 0,45 mm (see section 3.7)

2 Specification of the intended use in accordance with the applicable EAD

The intended use of the covering kit is:

1. watertight covering for use beneath a wearing surface, normally in the form of tiles, on substrates of gypsum boards and concrete, i.e. moisture sensitive substrates, which are flexible and with jointing and susceptible to cracking

The kit can be used with the following types of floor gullies:
Circular and rectangular gullies made from stainless steel or plastic type PE, with flange for adhesion of the membrane or with clamping ring or with collar

2. Indoor applications, where the liquid applied kit is not exposed to temperatures (i.e. temperature of structure) below 5 ºC and above 40 ºC, in the following uses:

- Floor and wall surfaces with only occasional direct exposure to water, e.g. at a good distance from shower or bathtub.
- Floors and walls in shower areas or around bathtubs used for a few showers daily, e.g. in ordinary dwellings, multi-family houses and hotels
- Floor and wall surfaces with exposure to water more frequent or of longer duration than normally anticipated in dwellings, e.g. public wet rooms, schools and sport facilities.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the kit of 25 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR2)	
Reaction to fire	**Euroclass F**
3.3 Hygiene, health and the environment (BWR3)	
Dangerous substances	The kit does not contain/release DS specified in TR 034, dated March 2012 *)
Vapour permeability	See Annex 1
Moisture resistance	
Water tightness	**Watertight** according to EN 14891
Crack bridging ability	**Assessment category 1**: Crack width 0,4 mm
Bond strength	Mira 4400 Multicoat and the following tile adhesives; Mira z-fix excellent, Mira 3110 Unifix and Mira 3130 Superfix on a concrete substrate all comply with **Assessment category 2**: Bond strength > 0,5 MPa Mira 4400 Multicoat and the following tile adhesives; Mira z-fix excellent, Mira 3110 Unifix and Mira 3130 Superfix on substrates of gypsum boards**) comply with **Assessment category 1**: Bond strength > 0,3 MPa
Scratching resistance	No performance determined
Joint bridging ability	Mira 4400 Multicoat with Mira Safecoat or Mira Seal Band comply with **Assesment category 2**: Watertight
Water tightness around penetrations	Mira 4400 Multicoat with and without primer and with Mira Safecoat, Mira Seal Band and Mira floor drain collar***) comply with **Assesment category 2**: Watertight

Characteristic		Assessment of characteristic
3.7	**Related aspects of durability and serviceability**	
	Resistance to temperature	**Assessment category 2**: Bond strength > 0,5 MPa
	Resistance to water	**Assessment category 2**: Bond strength > 0,5 MPa
	Resistance to alkalinity	Two layers Mira 4400 Multicoat with Mira 4500 Vapourmat comply with **Assessment category 1**: Bond strength > 0,3 Mpa Two layers Mira 4400 Multicoat comply with **Assessment category 2**: Bond strength > 0,5 MPa
	Repairability	Repairable
	Thickness	The required weight (wet) of the Mira 4400 Multicoat membrane is 1,60 kg/m^2 pr. mm required thickness of the layer The minimum thickness of the membrane shall be 0,6 mm wet film thickness corresponding to 0,45 dry film thickness.
	Applicability	Applicable
3.8	**Sustainable use of natural resources (BWR7)**	No performance determined

*) In accordance with http://europa.eu.int-/comm/enterprise/construction/internal/dangsub/dangmain.htm In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

**) The assessment of the fitness for use of the kit on the generic description of the boards is based on test on the following specified substrates in addition to concrete according to EN 1323; gypsum plasterboard type H in accordance with EN 520

***) In accordance with the provisions of ETAG 022 part 1 – Annex A, the kit has been tested with three types of floor gullies; two circular gullies, one made from stainless steel with a flange for floors with a membrane and one in PP plastic with a clamping ring type KL/150, and two rectangular gullies made from stainless steel with a flange for installation in wood based floors structures

3.9 Aspects related to the performance of the product

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide whether such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

The performance of the watertight membrane kit results from the characteristic values and categories.

The supplementing statements of the manufacturer stated in the MTD for design and application of the watertight system for creating a watertight covering under wearing surface for floors and walls in indoor wet areas shall be considered

The performance of the watertight membrane can be assumed only, if the following aspects are considered:

- only those components which are specified components of the kit can be used,
- the appropriate tools shall be used and adjuvant, precautions shall be taken,
- inspecting the substrate surface for cleanliness and correct treatment,
- inspection in the process of establishing the kit and of the finished watertight membrane and documentation of the results.

The information as to the handling of waste products shall be observed.

It is the manufacturer's responsibility to make sure that all those who utilize the kit will be appropriately informed about the specific conditions according to this ETA and the not confidential parts of the MTD deposited to this ETA

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 2003/655/EC of the European Commission as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

There is no declared fire performance, and hence the Decision 2003/655/EC of the European Commission with regard to reaction to fire is not relevant.

5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to the CE marking

Issued in Copenhagen on 2015-12-18 by

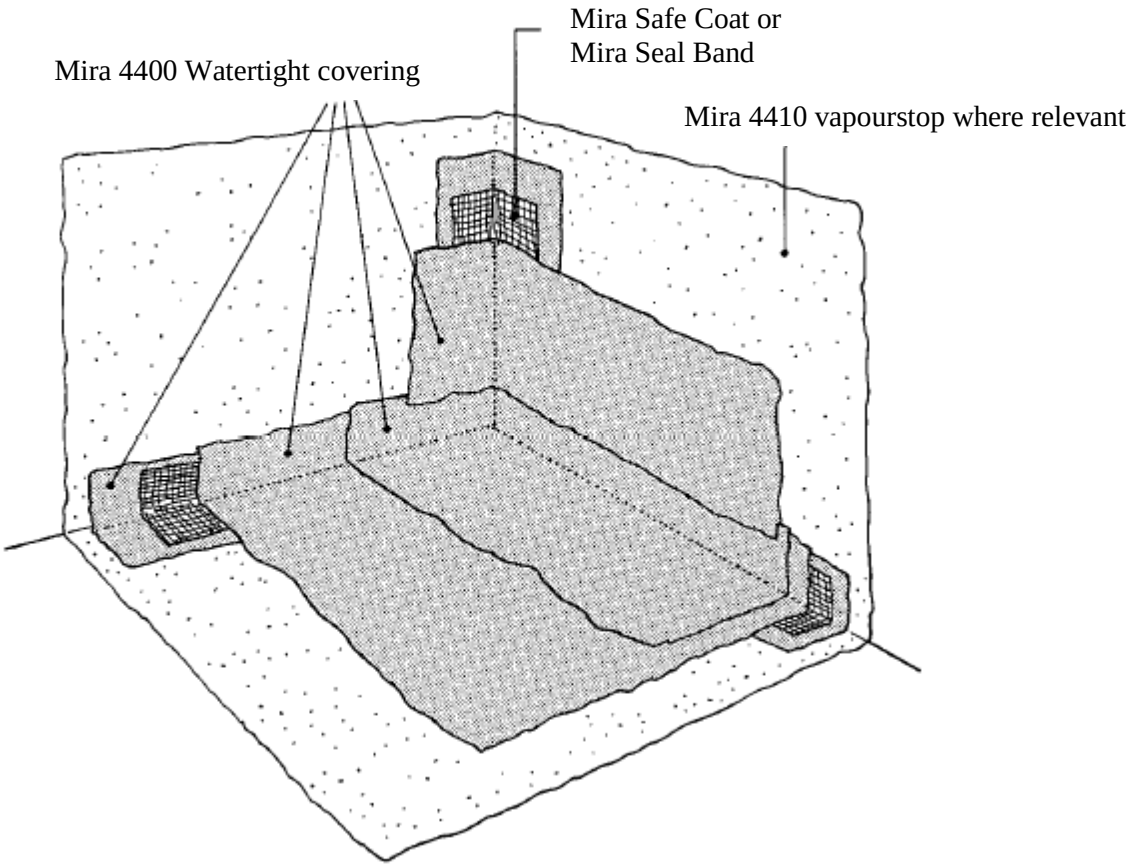
Thomas Bruun
Managing Director, ETA-Danmark

Vapour permeability

A range of tests were performed with different amounts of primer and membrane and applied in various applications. The below table illustrates the various tested combinations and obtained values:

Sample	**Z_p [GPa s m^2/kg]**	**Test conditions**	**Equivalent Z_v [s/m]**	**Equivalent s_d [m]**
2 × 500 g 4400 Multicoat (Equivalent wet film thickness = 0,6 mm)	35	$T_{chamber}$ 23ºC RF_{cup} 93% $RF_{chamber}$ 50%	255.500	6,8
2 × 800 g 4400 Multicoat (Equivalent wet film thickness = 1,0 mm)	52	$T_{chamber}$ 23ºC RF_{cup} 93% $RF_{chamber}$ 50%	379600	10,1
1 × 200 g 4410Vapourstop + 2 × 500 g 4400 Multicoat	134	$T_{chamber}$ 23ºC RF_{cup} 93% $RF_{chamber}$ 50%	978.200	26,1
2 × 150 g 4410Vapourstop + 2 × 500 g 4400 Multicoat	183	$T_{chamber}$ 23ºC RF_{cup} 93% $RF_{chamber}$ 50%	1.335.900	35,7
2 × 200 g 4410Vapourstop + 2 × 500 g 4400 Multicoat	257	$T_{chamber}$ 23ºC RF_{cup} 93% $RF_{chamber}$ 50%	1.876.100	50,1
1 × 200 g 4410Vapourstop + 3 × 535 g 4400 Multicoat	122	$T_{chamber}$ 23ºC RF_{cup} 93% $RF_{chamber}$ 50%	890.600	23,8
2 × 200 g 4410Vapourstop + 2 × 500 g 4400 Multicoat	138	$T_{chamber}$ 23ºC RF_{cup} 100 % $RF_{chamber}$ 75%	1.007.400	26,9
2 × 800 g 4400 Multicoat	28	$T_{chamber}$ 23ºC RF_{cup} 100 % $RF_{chamber}$ 75%	210.500	5,6
1 × 100 g 4410Vapourstop + 2 × 500 g 4400 Multicoat	95	$T_{chamber}$ 23ºC RF_{cup} 100 % $RF_{chamber}$ 75%	694.100	18,5
1 × 500 g 4400 Multicoat 4500 Mira Vapourmat 1 × 500 g 4400 Multicoat	441	$T_{chamber}$ 23ºC RF_{cup} 100 % $RF_{chamber}$ 75%	3.230.000	86,1

Note. The 4 last values are tested with alternative climatic conditions, which correspond to the test requirements in the Swedish regulation.



Note. When the Mira 4500 Vapour mat is required, it is installed between the two layers of Mira 4400 Mira Multicoat.

Mira 4400 Multicoat watertight covering kit	Annex 1 of European Technical Assessment ETA-09/0156
Principle build-up of the kit	