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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

MEMBER OF EOTA

European Technical Assessment ETA-22/0627 of 2022/10/13

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:	ARDEX S1-K Plus Watertight Covering System
Product family to which the above construction product belongs:	Liquid applied watertight covering kit for wet room floors and walls
Manufacturer:	ARDEX GmbH Friedrich-Ebert-Strasse 45 DE-58453 Witten Telephone +49 2302 664-0 Internet www.ardex.de
Manufacturing plant:	ARDEX GmbH Friedrich-Ebert-Strasse 45 DE-58453 Witten
This European Technical Assessment contains:	9 pages including 1 annex 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:	EAD 030352-00-0503 Liquid applied watertight covering kits for wet room floors and/or walls.
This version replaces:	-

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

General
The ARDEX S1-K Plus Watertight Covering System is a one-component liquid applied watertight membrane for wet room floors and walls beneath a wearing surface. The membrane is associated with components such as primer, reinforcements, collars adhesives and grout:

Primer
ARDEX P 2 D, which is a solvent free, dispersion-based primer. The primer must only be applied onto substrates in areas where the legislation requires a damp-proof membrane. The ARDEX P 2 D primer adds a significant function in limiting the water vapour permeability into the kit. Substrates that are not sensitive to moisture need no priming.

Membrane
ARDEX S1-K Plus, is a 1-component, solvent free liquid membrane based on dispersion.

Reinforcement
Strips
At the joints between wall and floor and at the inward and outward corners, a reinforcement strip is to be used. The system allows choosing between ARDEX SK 12 TRICOM, ARDEX SK 12 BT TRICOM, ARDEX CWP 120, ARDEX SFB 10, ARDEX STB 15-75 or ARDEX STB 20-150.

Prefabricated corners/height offsets
At inner at outer corners, the sealing strips can be supported with the prefabricated corners ARDEX SK 90 TRICOM, ARDEX SK 270 TRICOM, ARDEX SK 90 BT TRICOM, ARDEX SK 90 RENO TRICOM, ARDEX C 90 and ARDEX C 270. There are also prefabricated height offset components available for shower trays, namely ARDEX SK 20 L TRICOM, ARDEX SK 20 R TRICOM, ARDEX SK 28 L TRICOM and ARDEX SK 28 R TRICOM.

Mats
For the reinforcement around floor drains following components are suitable within this system: ARDEX PM 425, ARDEX SK-F TRICOM, ARDEX SK-G TRICOM + ARDEX SK-B 100/200 TRICOM, ARDEX STA 40x40, ARDEX STA 40x120, ARDEX STA 40x240 or ARDEX STD 40x40, depending on the drain design and installation recommendations.

Collars
The reinforcement around pipe penetrations on walls and floors can be done with following collars: ARDEX SK-M D TRICOM 285 x 140, ARDEX SK-M 15/30 TRICOM 140 x 140, ARDEX SK-M 40/65 TRICOM 180 x 180, ARDEX SK-M 70/100 TRICOM 220 x 220, ARDEX SK-M 75/130 TRICOM 240 x 240, ARDEX CM 15/30 140 x 140, ARDEX CM 40/65 180 x 180, ARDEX SK-W TRICOM 120 x 120, ARDEX SK-S TRICOM 150 x 150, ARDEX SK-R TRICOM 200 x 200, ARDEX SRM 12/22, ARDEX SRM 25/35, ARDEX SRM 40/60, ARDEX SRM 50/80, ARDEX SRM 80/110, ARDEX SRM 2x12-22 (c/c 40 or 60 mm) or ARDEX SRM 2x25-35 (c/c 40 or 60 mm), depending on the pipe diameter.

Adhesives
Adhesives covered by this ETA are: ARDEX CT 100, ARDEX X 6, ARDEX CT 20 W, ARDEX CT 25, ARDEX X 7 G FLEX, ARDEX X 7 G Erfolgsformel, ARDEX X 7 Gewerbe, ARDEX X 7 F, ARDEX X 7 G S, ARDEX X 7 G PLUS, ARDEX X 701 F (W), ARDEX X 77 (W), ARDEX X 77 (W) FLEX, ARDEX X 77 S, ARDEX X 78 (W), ARDEX X 78 FLEX, ARDEX X 78 S, ARDEX DITRA FBM, ARDEX S 9, ARDEX X 32, ARDEX N 23 (W), ARDEX S 28, ARDEX S 48, ARDEX X 90, ARDEX WA or ARDEX RG 12 can be used for installation of tiles.

Accessories
For some of the reinforcement components it is recommended to fix them on non-absorbent substrates with ARDEX CA 20 P or ARDEX S7 PLUS. The advice is relevant for ARDEX CWP 120, ARDEX C 90, ARDEX C 270, ARDEX SK-G TRICOM and ARDEX PM 425.

Kit

The kit is constructed as follows:

- If demanded by legislation, two layers of ARDEX P 2 D can be applied onto the substrate using a brush or roller. The first layer is applied with 160 g/m², the second layer with 90 g/m². It is not necessary to apply the primer on substrates like concrete, masonry, etc.

- Reinforcement of inner and outer corners, joints between wall and floor, over joints and cracks in the subfloor, around pipe penetrations and drains is done with the ARDEX reinforcement strips, corners, mats and collars, installed in a wet layer of ARDEX S 1-K Plus. For some components it is recommended to install them with ARDEX CA 20 P or ARDEX S7 PLUS.

- At least 1200 g/m² of ARDEX S 1-K Plus are distributed evenly over the entire surface in at least two applications. For each layer it is recommended to use at least 600 g/m².

- A layer of natural stone or ceramic tile adhered into a flexible cement- or epoxy-based tile adhesive from ARDEX.

- Grouting of tiles or natural stones with a cement-based joint from ARDEX. For joints with risk of cracking, use of ARDEX silicones is recommended

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter 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, fibre cement boards, cement bonded 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 PP or PE, with flange for adhesion of the membrane, with collar/membrane or with camping ring and collar.

2. Indoor applications, where the liquid applied, kit is not exposed to temperatures (i.e. temperature of the 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, provided that the watertight covering kit for wet room floors and/or walls is subject to appropriate installation.

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
2.2 Safety in case of fire (BWR2)	
Reaction to fire	The watertight covering kit is classified as **Euroclass E** in accordance with EN 13501-1 and Delegated Regulation (EU) 2016/364.
2.3 Hygiene, health and the environment (BWR3)	
Content, emission and/or release of dangerous substances*	No performance assessed
Vapour permeability	**S_d mean value: 63,9 m** at climate conditions 23°C and RH 50/93 % The S_d value of the kit applied to the gypsum board is 63,9 m, which is equivalent to Z_p = 3,27 x 10^{11} Pa s m²/kg with 160 g/m² + 90 g/m² ARDEX P 2 D in two applications and approx.. 1200 g/m² ARDEX S1-K Plus in two applications.
Water tightness	**Watertight**
Crack bridging ability	**Assessment category 2**: Crack width : 0,75 mm
Bond strength	ARDEX P 2 D and ARDEX S1-K Plus and tile adhesive ARDEX CT 100, ARDEX X 6, ARDEX CT 20 W, ARDEX CT 25, ARDEX X 7 G FLEX, ARDEX X 7 G Erfolgsformel, ARDEX X 7 Gewerbe, ARDEX X 7 F, ARDEX X 7 G S, ARDEX X 7 G PLUS, ARDEX X 701 F (W), ARDEX X 77 (W), ARDEX X 77 (W) FLEX, ARDEX X 77 S, ARDEX X 78 (W), ARDEX X 78 FLEX, ARDEX X 78 S, ARDEX DITRA FBM, ARDEX S 9, ARDEX X 32, ARDEX N 23 (W), ARDEX S 28, ARDEX S 48, ARDEX X 90, ARDEX WA or ARDEX RG 12, on a concrete substrate all comply with **Assessment category 2**: Bond strength ≥ 0,5 MPa
Scratching resistance	No performance assessed
Joint bridging ability	**Watertight**
Water tightness around penetrations	**Watertight**
Resistance to temperature	**Assessment category 2**
Resistance to water	ARDEX P 2 D and ARDEX S1-K Plus and tile adhesive ARDEX CT 100, ARDEX X 6, ARDEX CT 20 W, ARDEX CT 25, ARDEX X 7 G FLEX, ARDEX X 7 G Erfolgsformel, ARDEX X 7 Gewerbe, ARDEX X 7 F, ARDEX X 7 G S, ARDEX X 7 G PLUS, ARDEX X 701 F (W), ARDEX X 77 (W), ARDEX X 77 (W) FLEX, ARDEX X 77 S, ARDEX X 78 (W), ARDEX X 78 FLEX, ARDEX X 78 S, ARDEX DITRA FBM, ARDEX S 9, ARDEX X 32, ARDEX N 23 (W), ARDEX S 28, ARDEX S 48, ARDEX X 90, ARDEX WA or ARDEX RG 12, on a concrete substrate all comply with **Assessment category 2**: Bond strength ≥ 0,5 MPa

Characteristic		Assessment of characteristic
	Resistance to alkalinity	**Assessment category 2**: Bond strength ≥ 0,5 MPa
	Resistance to mechanical wear	Not relevant
2.4	**Safety in use (BWR4)**	
	Slipperiness	Not relevant
	Reparability	**No performance assessed**
	Thickness	The thickness of the ARDEX S-1 K Plus system is 0,5 mm after applying 2 layers.
	Durability of paint kits	Not relevant

See additional information in section 3.9

*) 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 Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.9 Aspects related to the performance of the product

The European Technical Assessment is issued for the product on the basis of 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 or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

The performance of the liquid applied watertight covering 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 liquid applied watertight covering kit 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 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

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+.

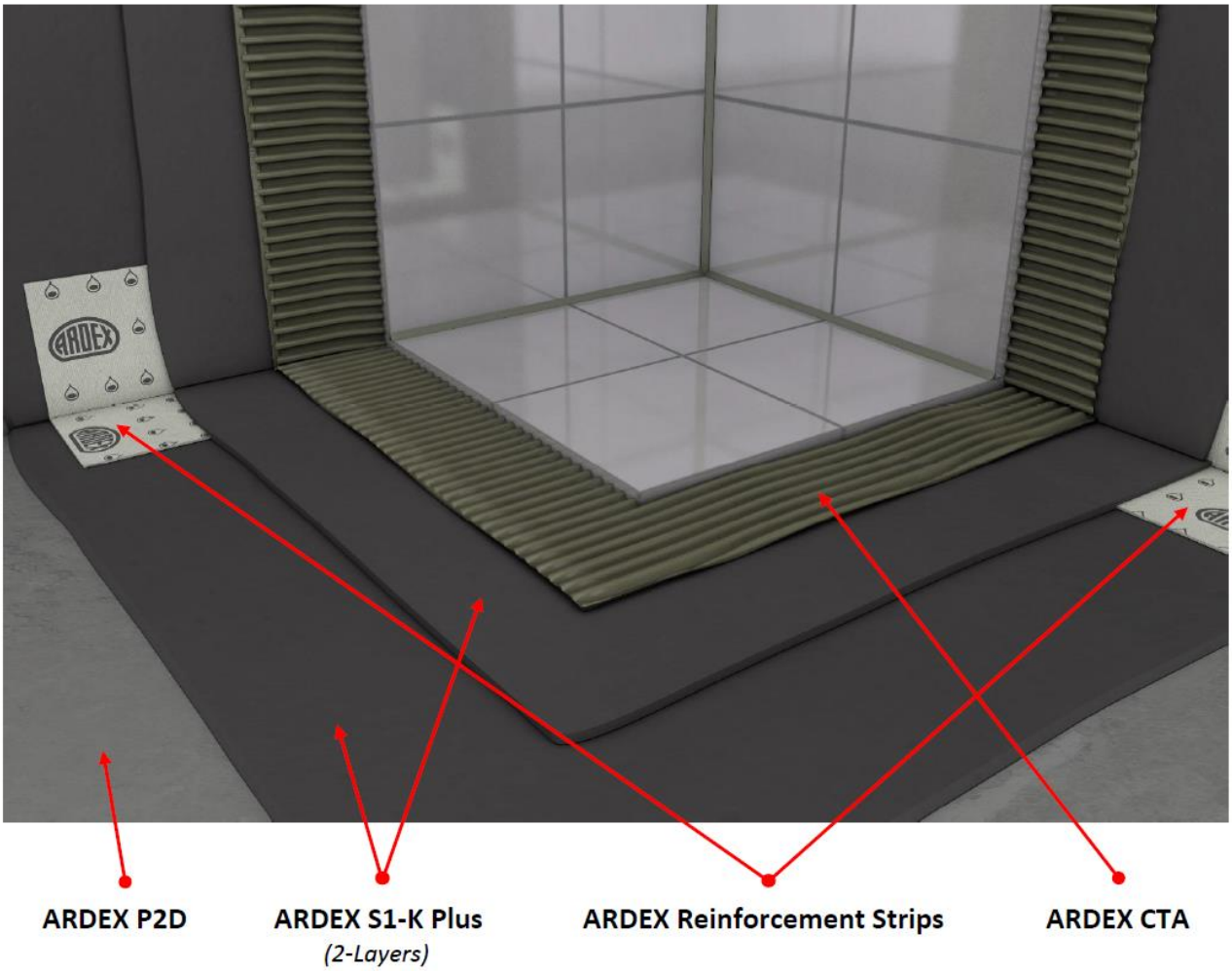
There is no assessed fire performance, and hence the Decision 2003/655/EC of the European Commission with regard to reaction to fire is not relevant.

5 Technical details necessary for the implementation of the AVCP system, as provided for 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 CE marking

Issued in Copenhagen on 2022-10-13 by

Thomas Bruun
Managing Director, ETA-Danmark



ARDEX S1-K Plus Watertight Covering System	Annex 1
Principle build-up of the kit	