Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

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European Technical Assessment

ETA-12/0383 of 9 June 2022

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Capatect WDVS "B" with mineralic base coats
Product family to which the construction product belongs	External Thermal Insulation Composite System with rendering on expanded polystyrene intended for use on building walls
Manufacturer	CAPAROL Farben Lacke Bautenschutz GmbH Roßdörfer Straße 50 64372 Ober-Ramstadt DEUTSCHLAND
Manufacturing plant	Caparol Farben Lacke Bautenschutz GmbH Roßdörfer Straße 50 64372 Ober-Ramstadt DEUTSCHLAND
This European Technical Assessment contains	30 pages including 5 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 040083-00-0404
This version replaces	ETA-12/0383 issued on 15 May 2019

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Specific part

1 Technical description of the product

This product is an ETICS (External Thermal Insulation Composite System) with rendering - a kit comprising components which are factory-produced by the manufacturer or component suppliers. It's made up on site from these. The ETICS manufacturer is ultimately responsible for the ETICS.

The ETICS kit comprises a prefabricated insulation product of expanded polystyrene (EPS) to be bonded and if necessary additional mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in annex 1.

The insulation product is faced with a rendering system consisting of one base and finishing coat (site applied), the base coat contains reinforcement. The rendering system is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g. base profiles, corner profiles ...) for connection to adjacent building elements (apertures, corners, parapets...). Assessment and performance of these components is not addressed in this ETA, however the ETICS-manufacturer is responsible for adequate compatibility and performance within the ETICS when the components are delivered as a part of the kit.

2 Specification of the intended use in accordance with the applicable European assessment Document

The performances in Section 3 can only be assumed if the ETICS is used in accordance with the specifications and under the boundary conditions specified in Annexes 2 to 5.

The verifications and assessment methods on which this ETA is based lead to the assumption of a working life of the ETICS "Capatect WDVS "B" with mineralic base coats" of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products in relation to the assumed economically reasonable working life of the works.

For use, maintenance and repair, the finishing coat shall normally be maintained in order to fully preserve the ETICS performance. Maintenance includes at least:

- visual inspection of the ETICS,
- the repairing of localized damaged areas due to accidents,
- the aspect maintenance with products compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs are to be carried out as soon as the need has been identified.
The information on use, maintenance and repair is given in the manufacturer's technical documentation.
It is the responsibility of the manufacturer to ensure that this information is made known to the concerned people.

3 Characteristics of products and methods of verification

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the ETICS	(see annex 2) Euroclass according to EN 13501-1
Reaction to fire of the EPS-insulation product	(see annex 2) Euroclass E according EN 13501-1
Apparent density of the EPS-insulation product according to EN 1602	$\rho_a \leq 30$ [kg/m³]

3.2 Hygiene, health and environment (BWR 3)

Essential characteristic	Performance	
Release of dangerous substances	no performance assessed	
Water absorption Base coat after 1 hour after 24 hours Rendering system after 1 hour after 24 hours EPS insulation product after 24 hours	(see annex 3.1) Average [kg/m²] Average [kg/m²] Average [kg/m²] Average [kg/m²] Maximum value 0.5 [kg/m²]	
Water-tightness of the ETICS: Hygrothermal behaviour on the test wall	Pass without defects	
Water-tightness of the ETICS: Freeze/thaw behaviour	The water absorption of the rendering system with all finishing coats except "Capatect AmphiSilan Fassadenputz K SPRINTER" and base coat "Capatect Klebe- und Armierungsmasse 186 M SPRINTER" is less than 0.5 kg/m² after 24 hours. The ETICS with the finishing coat "Capatect AmphiSilan Fassadenputz K SPRINTER" has been assessed as freeze/thaw resistant according to the simulated method. For the base coat "Capatect Klebe- und Armierungsmasse 186 M SPRINTER" was no performance assessed.	
Impact resistance	(see annex 3.2) Category	
Water vapour permeability - Rendering system	(see annex 3.3) s_d value [m]	
- EPS insulation product	μ = 20 - 78	Thickness of the insulation product 400 [mm]

3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Bond strength between base coat and EPS-insulation product	(see annex 4.1) - Minimal value/ average [kPa], rupture type Initial state (28 d immersion) - Minimal value/ average [kPa], rupture type: after hygrothermal cycles
between adhesive and substrate	(see annex 4.2) - Thickness [mm] of the used adhesives - Minimal value/average [kPa]: Initial state (dry conditions) - Minimal value/ average [kPa]: after 2 d immersion in water, 2 h drying - Minimal value/ average [kPa]: after 2 d immersion in water, 7 d drying
between adhesive and EPS insulation	(see annex 4.3) - Thickness [mm] of the used adhesives - Minimal value/average [kPa]: Initial state (dry conditions) - Minimal value/ average [kPa]: after 2 d immersion in water, 2 h drying - Minimal value/ average [kPa]: after 2 d immersion in water, 7 d drying
Minimal bonded surface area	S [%] = 0.03 N/ mm² x 100 / 0.8 N/ mm² S = 37.5 % The minimal bonded surface S of bonded ETICS is 40 %
Fixing strength (displacement test)	Test not required therefore no limitation of ETICS length required.
Wind load resistance of ETICS pull-through test of fixing static foam block test	(see annex 4.4) - R_{panel} [kN/fixing], - R_{joint} [kN/fixing], - Plate diameter of anchor ≥ 60 mm resp. ≥ 90 mm - plate stiffness ≥ 0.3 [kN/mm²] - load resistance of the anchor plate ≥ 1.0 [kN]
Tensile strength perpendicular to the faces	
in dry conditions standard EPS	σ_{mt} ≥ 80 [kPa] (bonded ETICS) σ_{mt} ≥ 100 [kPa] (bonded ETICS with anchors) σ_{mt} ≥ 150 [kPa] (bonded ETICS with profiles)
elastified EPS	σ_{mt} ≥ 80 [kPa]

Essential characteristic	Performance
Shear strength of the ETICS	$20 \leq f_{\tau k} \leq 170$ [kPa]
Shear modulus of the ETICS standard EPS elastified EPS	 $1.0 \leq G_m \leq 3.8$ [MPa] $0.3 \leq G_m \leq 1.0$ [MPa]
Pull-through resistance of the fixing of profiles	- Minimal value: 0.99 [kN] - Average: 1.02 [kN]
Render strip tensile test	(siehe Anhang 4.5) crack width w_{rk} [mm]
Bond strength after ageing finishing coat tested on the rig finishing coat not tested on the rig	(see annex 4.6) Minimal value/ average [kPa] Minimal value/ average [kPa]
Tensile strength of the glass fibre mesh in the as-delivered state	(see annex 4.7) Average [N/mm]
Residual tensile strength of the glass fibre mesh after aging	(see annex 4.7) Average [N/mm]
Relative residual tensile strength of the glass fibre mesh after aging	(see annex 4.7) Average [%]
Elongation of the glass fibre mesh in the as-delivered state	(see annex 4.7) Average [%]
Elongation of the glass fibre mesh after aging	(see annex 4.7) Average [%]

3.4 Protecion against noise (BWR 5)

Essential characteristic	Performance
Airborne sound insulation of ETICS	no performance assessed
Dynamic stiffness of the EPS insulation product	no performance assessed
Air flow resistance of the EPS insulation product	no performance assessed

3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance and thermal transmittance of ETICS	Calculated value or measurement value R $(m^2 \cdot K)/W$, see annex 5

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 010083-00-0404 the applicable European legal act is: 97/556/EC changed by 2001/596/EC

The systems to be applied are:

Product	Intended use	Levels or classes (Reaction to fire)	Systems
Capatect WDVS "B" with mineralic base coats	ETICS in external wall subject to fire regulations	A1 (1), A2 (1), B (1), C (1)	1
		A1 (2), A2 (2), B (2), C (2), D, E, (A1 to E) (3), F	2+
	ETICS in external wall not subject to fire regulations	any	2+

(1) Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

(2) Products/materials not covered by footnote (1)

(3) Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Classes A1 according to Commission Decision 96/603/EC)

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 9 June 2022 by Deutsches Institut für Bautechnik

Dipl.-Ing. Anja Rogsch
Head of Section

beglaubigt:
Windhorst

Annex 1
Composition of the ETICS

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Insulation material with associated method of fixing	**Bonded ETICS:**		
	• **Insulation product** factory-prefabricated expanded polystyrene (EPS)*		
	– standard EPS	–	≤ 400
	– elastified EPS	–	≤ 200
	• **Adhesives**		
	– **Capatect Klebe- und Armierungsmasse 186 M** (cement based powder requiring addition of about 20 - 24 % of water)	3.0 to 5.0 (powder)	–
	– **Capatect Klebe- und Spachtelmasse 190** (cement based powder requiring addition of about 20 - 24 % of water)	3.0 to 5.0 (powder)	–
	– **Capatect Klebe- und Armierungsmasse 133 Leicht** (cement based powder requiring addition of about 36 - 40 % of water)	3.0 to 3.5 (powder)	–
	– **Capatect Dämmkleber 185** (cement based powder requiring addition of about 20 % of water)	4.0 to 5.0 (powder)	–
	– **Capatect ArmaReno 700** (cement based powder requiring addition of about 20 - 25 % of water)	3.5 to 5.0 (powder)	– –
	– **Capatect ZF-Spachtel 699** (organic based ready to use paste)	2.0 to 4.0 (prepared)	
	Capatect Klebemasse 190 S (cement based powder requiring addition of about 22 - 24 % of water)	3.0 to 5.0 (powder)	–
	– **Capatect Klebe- und Armierungsmasse 131 SL** (cement based powder requiring addition of about 40 - 43 % of water)	3.0 to 4.5 (powder)	–
	– **Capatect Klebe- und Armierungsmasse 186 M SPRINTER** (cement based powder requiring addition of about 22 % of water)	3.0 to 5.0 (powder)	–
	– **Capatect X-TRA 300** (cement based powder requiring addition of about 36 - 40 % of water)	4.0 to 5.0 (powder)	–
	Mechanically fixed ETICS with profiles and supplementary adhesive: • **Insulation product** factory-prefabricated expanded polystyrene (EPS)* standard EPS • **Supplementary adhesive** (equal to bonded ETICS)	–	60 to 200

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Insulation material with associated method of fixing	• **Profiles** – Halteleiste PVC – Verbindungsleiste PVC Polyvinyl chloride (PVC) - profiles • **Anchors for profiles** – WS 8 L – ejotherm SDK U – SDF-K plus – ejotherm NK U		
	Mechanically fixed ETICS with anchors and supplementary adhesive: • **Insulation product** factory-prefabricated expanded polystyrene (EPS)* – standard EPS – elastified EPS • **Supplementary adhesive** (equal to bonded ETICS) • **Anchors for insulation product** all anchors with ETA according to EAD 330196-01-0604[1]	 – – 	 60 to 400 60 to 200
Base coat	**Capatect Klebe- und Armierungsmasse 186 M** **Capatect ArmaReno 700** **Capatect Klebe- und Armierungsmasse 133 Leicht** **Capatect Klebe- und Armierungsmasse 186 M SPRINTER** Identical with the equally named adhesives given above.	4.5 to 7.5 4.5 to 10.5 5.5 to 11.0 3.5 to 6.0	3.0 to 5.0 3.0 to 7.0 5.0 to 10.0 3.0 to 5.0
Glass fibre mesh	**Capatect Gewebe 650** Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m² and mesh size of about 4.0 mm x 4.0 mm. **Capatect Gewebe 666** Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m² and mesh size of about 6.0 mm x 6.0 mm. **Capatect Panzergewebe 652** (implemented in addition to the standard mesh to improve the impact resistance) Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 330 g/m² and mesh size of about 6.0 mm x 6.0 mm.	– – –	– – –

[1] EAD330196-01-0604 Plastic anchors for fixing of external thermal insulation composite systems with rendering

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Key coat	Ready to use pigmented liquid – styrol acrylate binder		
	Putzgrund 610	ca. 0.20 l/m²	
	Putzgrund 610 SPRINTER	ca. 0.20 l/m²	
	For the compatibility with the finishing coats see below.		
Finishing Coat	**All finishing coats except "Capatect AmphiSilan-Fassadenputz K SPRINTER" to use with key coat "Putzgrund 610" if applicable:****		
	<u>Applicable with all base coats except "Capatect Klebe- und Armierungsmasse 186 M SPRINTER "</u>		
	• Ready to use pastes – acrylate binder:		
	Capatect Fassadenputz R** (particle size 1.5 to 3.0 mm)	2.8 to 3.6	regulated by particle size
	Capatect Fassadenputz K** (particle size 1.5 to 3.0 mm)	2.7 to 4.3	
	• Ready to use pastes – acrylate/silicone resin emulsion:		
	Capatect AmphiSilan Fassadenputz R** (particle size 2.0 to 3.0 mm)	2.5 to 3.5	
	Capatect AmphiSilan Fassadenputz K** (particle size e 1.5 to 3.0 mm)	2.5 to 4.1	
	• Ready to use paste – vinyl acetate ethylene binder:		
	Capatect Fassadenputz Fein	3.0 to 4.5	2.0 to 3.0
	• Ready to use pastes – silicate/styrol acrylate binder:		
	Capatect Sylitol Fassadenputz R** (particle size 2.0 to 3.0 mm)	2.5 to 4.0	regulated by particle size
	Capatect Sylitol Fassadenputz K** (particle size 1.5 to 3.0 mm)	2.5 to 4.0	
	• Cement based powder requiring addition of about 28 – 44 % of water:		
	Capatect Mineral-Leichtputz R** (particle size 2.0 to 3.0 mm)	2.3 to 4.5	
	Capatect Mineral-Leichtputz K** (particle size 1.5 to 5.0 mm)	2.0 to 4.0	
	• Cement based powder requiring addition of about 20-24% of water:		
	Capatect Mineralputz R** (particle size 2.0 to .3.0 mm)	about 3.0	regulated by particle size
	Capatect Mineralputz K** (particle size 2.0 to 3.0 mm)	about 3.0	
	Capatect Feinspachtel 195	4.0 to 6.0	2.0 to 3.0

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Finishing coat	**<u>Only applicable with the base coat "Capatect Klebe-und Armierungsmasse 186 M" exclusively</u>**		
	• Ready to use pastes – silicate/organic hybrid dispersion		
	Capatect ThermoSan Fassadenputz NQG R** (particle size 1.5 to 3.0 mm)	1.8 bis 2.6	regulated by particle size
	Capatect ThermoSan Fassadenputz NQG K** (particle size 1.5 to 3.0 mm)	1.3 bis 3.2	
	• Ready to use pastes – styrol acrylate/ vinylic binder:		
	Capatect AmphiSilan Fassadenputz FEIN (particle size 1.0 mm)	1.4 to 2.0	1.0 to 1.5
	Capatect AmphiSilan Fassadenputz K10 (particle size 1.0 mm)	1.4 to 2.0	1.0 to 1.5
	• Ready to use pastes – polymer dispersion binder:		
	Capatect Putz 622 W SilaCryl (particle size 1.5 mm)	2.5 to 3.5	1.3 to 1.7
	• Cement based powder requiring addition of about 20 – 24 % of water:		
	Capatect ArmaReno 500	2.8 to 4.2	2.0 to 3.0
	<u>Only applicable with the base coats "Capatect Klebe- und Armierungsmasse 133 Leicht" and "Capatect Klebe- und Armierungsmasse 186 M"exclusively</u>		
	• Cement based powder requiring addition of about 40 % of water:		
	Capatect Modellier- und Spachtelputz 134	about 4.0	2.0 to 5.0
	<u>Only applicable with the base coat "Capatect Klebe- und Armierungsmasse 133 Leicht" exclusively</u>		
	• Cement based powder requiring addition of about 25 % of water:		
	Capatect Edelkratzputz	13.0 to 16.0	6.0 to 12.0
	<u>Only applicable with the base coat "Capatect Klebe- und Armierungsmasse 186 M SPRINTER" exclusively</u>		
	• Cement based powder requiring addition of about 22 – 26 % of water.		
	Capatect Mineralputz K SPRINTER	2.0 to 3.5	1.0 to 3.0
	To use with key coat "Putzgrund 610 SPRINTER" if applicable:***		
	• Ready to use paste – pure acrylate/silicone resin emulsion:		
	Capatect AmphiSilan-Fassadenputz K SPRINTER	3.2 to 4.1	2.0 to 3.0

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Finishing coat	**<u>Only applicable with the base coats "Capatect ArmaReno 700" and "Capatect Klebe-und Armierungsmasse 186 M" exclusively</u>** • Ready to use paste – styrol acrylate binder – associated with synthetic briquettes: **Meldorfer Flachverblender with** **Meldorfer Ansatzmörtel 080**	 4.0 to 5.0 3.0 to 4.0	 6.0 1.0 to 4.0
Ancillary material	Remain under the manufacturer's responsibility.		

* Factory-prefabricated, uncoated panels made of expanded polystyrene (EPS) shall be used
** K / R indicates different structures of the finishing coats.
*** The instruction to the installer concerning the use of a key coat remains the responsibility of the manufacturer.

Annex 2

Safety in case of fire (BWR 2)

Reaction to fire

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
All base coats except "Capatect Klebe- und Armierungsmasse 186 M SPRINTER"	max. 3.9 %	no flame retardant	B – s1,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Capatect Sylitol Fassadenputz R, Capatect Sylitol Fassadenputz K	max. 6.2 %	no flame retardant	
Capatect Mineral-Leichtputz R, Capatect Mineral-Leichtputz K, Capatect Mineralputz R, Capatect Mineralputz K, Capatect Feinspachtel 195	max. 3.7 %		

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Base coat "Capatect Klebe- und Armierungsmasse 186 M"	max. 2.3 %	no flame retardant	B – s1,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Capatect Modellier- und Spachtelputz 134, Capatect ArmaReno 500	max. 3.7 %	no flame retardant	

Configurations	**Organic content**	**Flame retardant content**	**Euroclass according to EN 13501-1**
Base coat "Capatect Klebe- und Armierungsmasse 133 Leicht"	max. 3.9 %	no flame retardant	B – s1,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Capatect Modellier- und Spachtelputz 134, Capatect Edelkratzputz	max. 3.7 %	no flame retardant	

Configurations	**Organic content**	**Flame retardant content**	**Euroclass according to EN 13501-1**
All base coats except "Capatect Klebe- und Armierungsmasse 186 M SPRINTER"	max. 3.9 %	no flame retardant	B – s2,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Capatect Fassadenputz R, Capatect Fassadenputz K	max. 8.9 %	no flame retardant	
Capatect AmphiSilan-Fassadenputz R			
Capatect Fassadenputz Fein			
Capatect AmphiSilan-Fassadenputz K	max. 8.4 %	min 3.0 %	

Configurations	**Organic content**	**Flame retardant content**	**Euroclass according to EN 13501-1**
Base coat "Capatect Klebe- und Armierungsmasse 186 M"	max. 2.3 %	no flame retardant	B – s2,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Capatect ThermoSan Fassadenputz NQG R, Capatect ThermoSan Fassadenputz NQG K	max. 8.9 %	no flame retardant	
Capatect AmphiSilan Fassadenputz FEIN, Capatect AmphiSilan Fassadenputz K 10	max. 8.7 %		
Capatect Putz 622 W SilaCryl			
Meldorfer Flachverblender mit Meldorfer Ansatzmörtel 080	max. 9.2 % max. 9.9 %	min. 9.0 % no flame retardant	

Configurations	**Organic content**	**Flame retardant content**	**Euroclass according to EN 13501-1**
Base coat "Capatect ArmaReno 700"	max. 2.8 %	no flame retardant	B – s2,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Meldorfer Flachverblender mit Meldorfer Ansatzmörtel 080	max. 9.2 % max. 9.9 %	min. 9.0 % no flame retardant	

Configurations	**Organic content**	**Flame retardant content**	**Euroclass according to EN 13501-1**
Base coat "Capatect Klebe- und Armierungsmasse 186 M SPRINTER"	max. 2.9 %	no flame retardant	B – s2,d0
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Profile	-	-	
Anchor	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in annex 1:			
Capatect AmphiSilan-Fassadenputz K SPRINTER	max. 8.8 %	min. 3.0 %	
Capatect Mineralputz K SPRINTER	max. 2.0 %	no flame retardant	

Annex 3

Hygiene, health and environment (BWR 3)

3.1 Water absorption (capillarity test)

Base coat:

	Mean value water absorption [kg/m²]	
	after 1 h	after 24 h
Capatect Klebe- und Armierungsmasse 186 M	0.04	0.17
Capatect ArmaReno 700	0.02	0.32
Capatect Klebe- und Armierungsmasse 133 Leicht	0.04	0.32
Capatect Klebe- und Armierungsmasse 186 M SPRINTER	0.32	0.81

Rendering system:

Base coat with finishing coat "Capatect Klebe- und Armierungsmasse 186 M " indicated hereafter	Mean value water absorption [kg/m²]	
	after 1h	after 24h
Capatect Fassadenputz R/K	0.07	0.47
Capatect AmphiSilan Fassadenputz R/K	0.06	0.48
Capatect Fassadenputz Fein	0.04	0.28
Capatect Sylitol-Fassadenputz R/K	0.08	0.44
Capatect Mineral-Leichtputz R/K	0.14	0.33
Capatect Mineralputz R/K	0.11	0.49
Capatect Feinspachtel 195	0.09	0.40
CapatectThermoSan Fassadenputz NQG R/K	0.10	0.40
Capatect AmphiSilan Fassadenputz FEIN	0.00	0.20
Capatect AmphiSilan Fassadenputz K 10	0.00	0.20
Capatect Putz 622 W SilaCryl	0.10	0.20
Capatect ArmaReno 500	0.10	0.40
Capatect Modellier- und Spachtelputz 134	0.06	0.27
Meldorfer Flachverblender with Meldorfer Ansatzmörtel 080	0.09	0.25

Base coat with finishing coat "Capatect ArmaReno 700" indicated hereafter	**Mean value water absorption [kg/m²]**	
	after 1h	**after 24h**
Capatect Fassadenputz R/K	0.06	0.49
Capatect AmphiSilan Fassadenputz R/K	0.03	0.32
Capatect Fassadenputz Fein	0.03	0.27
Capatect Sylitol-Fassadenputz R/K	0.09	0.44
Capatect Mineral-Leichtputz R/K	0.09	0.27
Capatect Mineralputz R/K	0.09	0.33
Capatect Feinspachtel 195	0.08	0.32
Meldorfer Flachverblender with Meldorfer Ansatzmörtel 080	0.03	0.31

Base coat with finishing coat "Capatect Klebe- und Armierungsmasse 133 Leicht " indicated hereafter	**Mean value water absorption [kg/m²]**	
	after 1h	**after 24h**
Capatect Fassadenputz R/K	0.04	0.49
Capatect AmphiSilan Fassadenputz R/K	0.06	0.48
Capatect Fassadenputz Fein	0.06	0.26
Capatect Sylitol-Fassadenputz R/K	0.10	0.44
Capatect Mineral-Leichtputz R/K	0.10	0.29
Capatect Mineralputz R/K	0.10	0.39
Capatect Feinspachtel 195	0.08	0.29
Capatect Modellier- und Spachtelputz 134	0.05	0.25
Capatect Edelkratzputz	0.43	0.46

Base coat with finishing coat "Capatect Klebe- und Armierungsmasse 186 M SPRINTER " indicated hereafter	**Mean value water absorption [kg/m²]**	
	after 1h	**after 24h**
Capatect Mineralputz K SPRINTER	0.04	0.27
Capatect AmphiSilan Fassadenputz K SPRINTER	0.26	0.74

3.2 Impact resistance

Rendering system: Base coat with finishing coat indicated hereafter.	**Single standard mesh " Capatect Gewebe 650"**				
	Capatect Klebe- und Armierungsmasse 186 M		Capatect ArmaReno 700	Capatect Klebe- und Armierungsmasse 133 Leicht	
	t = 3 mm	t = 4 mm	t = 3 mm	t < 10 mm	t = 10 mm
Capatect Fassadenputz R/K	Category II		Category II	Category III	Category II
Capatect AmphiSilan Fassadenputz R/K					
Capatect Fassadenputz Fein	Category III				
Capatect Sylitol-Fassadenputz R/K	Category II				
Capatect Mineral-Leichtputz R/K					
Capatect Mineralputz R/K					
Capatect Feinspachtel 195					
Capatect ThermoSan Fassadenputz NQG R/K	Category III		not applicable in compliance with annex 1		
Capatect AmphiSilan Fassadenputz FEIN					
Capatect AmphiSilan Fassadenputz K 10					
Capatect Putz 622 W SilaCryl					
Capatect ArmaReno 500					
Capatect Modellier- und Spachtelputz 134	Category II	not applicable in compliance with annex 1		Category III	Category II
Capatect Edelkratzputz	not applicable in compliance with annex 1			Category I	
Meldorfer Flachverblender with Meldorfer Ansatzmörtel 080	Category I		Category II	not applicable in compliance with annex 1	

	Single standard mesh "Capatect Gewebe 650"
Rendering system: Base coat with finishing coat indicated hereafter:	Caparol Klebe- und Armierungsmasse 186 M SPRINTER
Capatect Mineralputz K SPRINTER	no performance assessed
Capatect AmphiSilan Fassadenputz K SPRINTER	Category II

	Single standard mesh "Capatect Gewebe 666"	
Rendering system: Base coat with finishing coat indicated hereafter:	Capatect ArmaReno 700 (t ≥ 3 mm)	Capatect Klebe- und Armierungsmasse 133 Leicht (t < 10 mm)
Capatect Mineral-Leichtputz K	Category II	Category III
Capatect Mineralputz K	Category II	Category II
Capatect Modellier- und Spachtelputz 134	not applicable in compliance with annex 1	Category III
Capatect Edelkratzputz	not applicable in compliance with annex 1	Category I
Meldorfer Flachverblender mit Meldorfer Ansatzmörtel 080	Category II	not applicable in compliance with annex 1
Capatect Fassadenputz Fein	Category II	Category III

For the impact resistance for all other combinations of ETICS no performance was assessed.

3.3 Water vapour permeability

Rendering system: Base coat "Capatect Klebe- und Armierungsmasse 186 M" with finishing coat and compatible key coat indicated hereafter	**Equivalent air thickness s_d**
Capatect Fassadenputz R/K*	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.35 m)
Capatect AmphiSilan Fassadenputz R,K*	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.20 m)
Capatect Fassadenputz Fein*	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.40 m)
Capatect Sylitol Fassadenputz R/K*	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.15 m)
Capatect Mineral-Leichtputz R/K*	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.10 m)
Capatect Mineralputz R/K*	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.35 m)
Capatect Feinspachtel 195*	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.35 m)
Capatect ThermoSan Fassadenputz NQG R/K**	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.35 m)
Capatect AmphiSilan Fassadenputz FEIN**	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.35 m)
Capatect AmphiSilan Fassadenputz K 10**	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.35 m)

Rendering system: Base coat "Capatect Klebe- und Armierungsmasse 186 M" with finishing coat and compatible key coat indicated hereafter	**Equivalent air thickness s_d**
Capatect Putz 622 W SilaCryl**	≤ 1.0 m (Test result obtained with a layer thickness 1.5 mm: 0.95 m)
Capatect ArmaReno 500**	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.45 m)
Capatect Modellier- und Spachtelputz 134*	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.10 m)
Meldorfer Flachverblender with Meldorfer Ansatzmörtel 080*	≤ 1.0 m (Test result: 0.70 m)
* assessed without key coat ** assessed with key coat	

	Equivalent air thickness s_d	
Rendering system: finishing coats with adjacent base coats (evaluated without key coat)	Capatect ArmaReno 700	Capatect Klebe- und Armierungsmasse 133 Leicht
Capatect Fassadenputz R/K	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.3 m)	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.3 m)
Capatect AmphiSilan Fassadenputz R,K	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)
Capatect Fassadenputz Fein	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.5 m)	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.6 m)
Capatect Sylitol Fassadenputz R/K	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)
Capatect Mineral-Leichtputz R/K	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.1 m)	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.1 m)
Capatect Mineralputz R/K	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.1 m)	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)
Capatect Feinspachtel 195	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.1 m)	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.2 m)
Capatect Modellier- und Spachtelputz 134	not applicable in compliance with annex 1	≤ 1.0 m (Test result obtained with a layer thickness 4 mm: 0.1 m)
Capatect Edelkratzputz	not applicable in compliance with annex 1	≤ 1.0 m (Test result obtained with a layer thickness 10 mm: 0.2 m)

	Equivalent air thickness s_d	
Rendering system: finishing coats with adjacent base coats (evaluated without key coat)	Capatect ArmaReno 700	Capatect Klebe- und Armierungsmasse 133 Leicht
Meldorfer Flachverblender with Meldorfer Ansatzmörtel 080	≤ 1.0 m (Test result: 0.6 m)	not applicable in compliance with annex 1

Rendering system: Base coat "Capatect Klebe- und Armierungsmasse 186 M SPRINTER" with finishing coat and compatible key coat indicated in annex 1	**Equivalent air thickness s_d**
Capatect Mineralputz K SPRINTER	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.17 m)
Capatect AmphiSilan Fassadenputz K SPRINTER	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.24 m)

Annex 4

Safety and accessibility in use (BWR 4)

4.1 Bond strength between base coat and insulation product (EPS)

		Conditioning		
		Initial state [kPa]	**After hygrothermal cycles [kPa]**	**After freeze/thaw test**
Capatect Klebe- und Armierungsmasse 186 M	Average	110	131	Test not required because freeze/thaw cycles not necessary
	Minimal value	99	99	
Capatect ArmaReno 700	Average	110	70*	
	Minimal value	100	60*	
Capatect Klebe- und Armierungsmasse 133 Leicht	Average	150	81	
	Minimal value	135	67*	
Capatect Klebe- und Armierungsmasse 186 M SPRINTER	Average	128	112	
	Minimal value	125	105	

* < 80 kPa but failure in thermal insulation material

4.2 Bond strength between adhesive and substrate

		Conditoning		
Substrate: concrete		**Initial state [kPa]**	**2 d immersion in water and 2 hrs. drying [kPa]**	**2d immersion in water and 7 days drying [kPa]**
Capatect Klebe- und Armierungsmasse 186 M	Average	820	452	894
	Minimal value	790	410	870
Capatect Klebe- und Spachtelmasse 190	Average	1020	590	1110
	Minimal value	930	540	1010
Capatect Klebe- und Armierungsmasse 133 Leicht	Average	658	465	704
	Minimal value	586	419	677
Capatect Dämmkleber 185	Average	1852	1735	1771
	Minimal value	1350	1620	1595
Capatect ArmaReno 700	Average	980	730	1090
	Minimal value	860	630	950
Capatect ZF Spachtel 699	Average	1025	649	519
	Minimal value	990	553	411
Capatect Klebemasse 190 S	Average	1800	1000	2700
	Minimal value	1650	730	2250
Capatect Klebe- und Armierungsmasse 131 SL	Average	535	367	629
	Minimal value	496	328	435

Substrate: concrete		Conditoning		
		Initial state [kPa]	2 d immersion in water and 2 hrs. drying [kPa]	2d immersion in water and 7 days drying [kPa]
Capatect Klebe- und Armierungsmasse 186 M SPRINTER	Average	920	420	550
	Minimal value	800	330	490
Capatect X-TRA 300	Average	678	310	671
	Minimal value	532	283	653

4.3 Bond strength between adhesive insulation product (EPS)

		Conditioning		
		Initial state [kPa]	2 d immersion in water and 2 hrs. drying [kPa]	2d immersion in water and 7 days drying [kPa]
Capatect Klebe- und Armierungsmasse 186 M	Average	93	83	94
	Minimal value	89	79	91
Capatect Klebe- und Spachtelmasse 190	Average	110	90	110
	Minimal value	90	87	97
Capatect Klebe- und Armierungsmasse 133 Leicht	Average	150	99	127
	Minimal value	135	85	117
Capatect Dämmkleber 185	Average	121	111	123
	Minimal value	110	101	112
Capatect ArmaReno 700	Average	110	70	120
	Minimal value	100	60	90
Capatect ZF Spachtel 699	Average	125	133	110
	Minimal value	117	109	95
Capatect Klebemasse 190 S	Average	120	100	100
	Minimal value	110	90	80
Capatect Klebe- und Armierungsmasse 131 SL	Average	145	136	161
	Minimal value	115	89	137
Capatect Klebe- und Armierungsmasse 186 M SPRINTER	Average	110	100	110
	Minimal value	110	90	100
Capatect X-TRA 300	Average	120	78	100
	Minimal value	96	66	92

4.4 Wind load resistance

The following failure loads only apply to the listed combination of component characteristics and the characteristics of the insulation product.

4.4.1 Wind load resistance of ETICS mechanically fixed with profiles

Characteristics of the EPS **(Standard-EPS)**	Dimensions	500 mm x 500 mm
	Thickness	≥ 60 mm
	Tensile strength perpendicular to the faces	**≥ 150 kPa**
	Shear modulus	≥ 1.0 N/mm²
Failure load [kN / panel] (Static Foam Block Test)	Horizontal profiles fixed every 30 cm and 49.4 cm long vertical connection profiles	Minimal: 0.95 Average: 0.101

4.4.2 Wind load resistance of ETICS mechanically fixed with dowels

Apply to all anchors listed in annex 1 mounted on the insulation panels surface				
Characteristics of the EPS **(standard EPS)**	Thickness		≥ 60 mm	
	Tensile strength perpendicular to the faces		**≥ 100 kPa**	
	Shear modulus		≥ 1.0 N/mm²	
Plate diameter of anchor			∅ 60 mm	∅ 90 mm
Failure load [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R_{panel}	Minimal: 0.51 Average: 0.52	Minimal: 0.72 Average: 0.73
	Anchors placed at the panel joints (Pull-through Test)	R_{joint}	Minimal: 0.40 Average: 0.43	Minimal: 0.43 Average: 0.47

Apply to all anchors listed in annex 1 mounted on the insulation panels surface			
Characteristics of the EPS **(elastified EPS)**	Thickness		≥ 60 mm
	Tensile strength perpendicular to the faces		**≥ 80 kPa**
	Shear modulus		≥ 0.3 N/mm²
Plate diameter of anchor plate			∅ 60 mm
Failure laod [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R_{panel}	Minimal: 0.35 Average: 0.36
	Anchors placed at the panel joints (Pull-through Test)	R_{joint}	Minimal: 0.30 Average: 0.31

The failure loads specified above for the plate diameter of anchor of 60 mm apply to the following anchors with deep mounting but only on the following conditions of installation:

Anchor	Thickness of the EPS [t]	Conditions of installation*
ejotherm STR U, ejotherm STR U 2G (ETA-04/0023) STR Carbon (ETA-13/0009)	100 mm > t ≥ 80 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover) – Incision depth: 20 mm
	≥ 100 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover) Incision depth: 35 mm
TERMOZ 8 SV (ETA-06/0180)	≥ 80 mm (for standard EPS only)	– Maximum installation depth of the anchor plate 15 mm (≙thickness of insulation cover)
Hilti WDVS-screwed in-anchor D 8-FV (ETA-07/0288)	≥ 100 mm (for standard EPS only)	– Minimum Thickness of fixture in the insulation panel: t_{fix} = 80 mm; only setting tools according to ETA-07/0288 are to be used.
* according to the appropriate ETA of anchor		

4.5 Render strip tensile test

The average value of crack width of the base coats reinforced with the different glass fibre meshes measured at a render strain value of 1 % is:

Base coat	Glass fibre mesh	Average value of crack width $w_{m(1\%)}$
Capatect Klebe- und Armierungsmasse 186 M	Capatect Gewebe 650	0.06 mm
Capatect ArmaReno 700	Capatect Gewebe 650	0.07 mm
Capatect Klebe- und Armierungsmasse 133 Leicht	Capatect Gewebe 650	0.08 mm
Capatect ArmaReno 700	Capatect Gewebe 666	0.07 mm
Capatect Klebe- und Armierungsmasse 133 Leicht	Capatect Gewebe 666	0.09 mm
Capatect Klebe- und Armierungsmasse 186 M SPRINTER	Capatect Gewebe 650	0.07 mm

For all other base coat-mesh combinations no performance was assessed for the render strip tensile test.

4.6 Bond strength after ageing [kPa]

Finishing coat with base coat indicated hereafter		7 d immersion in water and 7 d drying [kPa] with base coat "Capatect Klebe- und Armierungsmasse 186 M"	7 d immersion in water and 7 d drying [kPa] with base coat "Capatect ArmaReno 700"	7 d immersion in water and 7 d drying [kPa] with base coat "Capatect Klebe- und Armierungsmasse 133 Leicht"
Capatect Fassadenputz R, K	Average	103	110	110
	Minimal value	95	110	103
Capatect AmphiSilan Fassadenputz R, K	Average	115	110	105
	Minimal value	110	110	103
Capatect-Fassadenputz Fein	Average	109	110	109
	Minimal value	101	110	105
Capatect Sylitol-Fassadenputz R, K	Average	127	110	100
	Minimal value	119	110	95
Capatect Mineral-Leichtputz R, K	Average	140	110	101
	Minimal value	138	110	96
Capatect Feinspachtel 195	Average	117	110	110
	Minimal value	116	110	103

Finishing coat with base coat indicated hereafter		**7 d immersion in water and 7 d drying [kPa] with base coat "Capatect Klebe- und Armierungsmasse 186 M"**	**7 d immersion in water and 7 d drying [kPa] with base coat "Capatect ArmaReno 700"**	**7 d immersion in water and 7 d drying [kPa] with base coat "Capatect Klebe- und Armierungsmasse 133 Leicht"**
Capatect Modellier- und Spachtelputz 134	Average	136	not applicable in compliance with annex 1	113
	Minimal value	132		105
Meldorfer Flachverblender mit Meldorfer Ansatzmörtel	Average	120	110	not applicable in compliance with annex 1
	Minimal value	116	110	
Capatect Mineralputz R, K	Average	99	110	109
	Minimal value	92	110	102
Capatect ThermoSan Fassadenputz NQG R/K	Average	90	not applicable in compliance with annex 1	not applicable in compliance with annex 1
	Minimal value	80		
Capatect AmphiSilan Fassadenputz FEIN	Average	80	not applicable in compliance with annex 1	not applicable in compliance with annex 1
	Minimal value	70		
Capatect AmphiSilan Fassadenputz K 10	Average	80	not applicable in compliance with annex 1	not applicable in compliance with annex 1
	Minimal value	70		
Capatect Putz 622 W SilaCryl	Average	90	not applicable in compliance with annex 1	not applicable in compliance with annex 1
	Minimal value	80		
Capatect ArmaReno 500	Average	90	not applicable in compliance with annex 1	not applicable in compliance with annex 1
	Minimal value	80		
Capatect Edelkratzputz	Average	not applicable in compliance with annex 1	not applicable in compliance with annex 1	113
	Minimal value			105

Finishing coat with base coat indicated hereafter		**7 d immersion in water and 7 d drying [kPa] with base coat "Capatect Klebe-und Armierungsmasse 186 M SPRINTER"**
Capatect Mineralputz K SPRINTER	Average	120
	Minimal value	110
Capatect AmphiSilan Fassadenputz K SPRINTER	Average	97
	Minimal value	63*
* < 80 kPa but failure in thermal insulation material		

4.7 Reinforcement (glass fibre mesh)

Capatect Gewebe 650	Average warp	Average weft
Tensile strength in as-delivered state	44.8 N / mm	44.8 N / mm
Residual tensile strength after aging	30.6 N / mm	30.2 N / mm
Relative residual tensile strength after aging	68.3 %	67.4 %
Elongation in as-delivered state	3.6 %	3.6 %
Elongation after aging	1.49 %	1.31 %

Capatect Gewebe 666	Average warp	Average weft
Tensile strength in as-delivered state	44.0 N / mm	62.0 N / mm
Residual tensile strength after aging	30.0 N / mm	42.0 N / mm
Relative residual tensile strength after aging	68.1 %	67.7 %
Elongation in as-delivered state	3.8 %	4.3 %
Elongation after aging	2.5 %	2.8 %

Capatect Panzergewebe 652	Average warp	Average weft
Tensile strength in as-delivered state	64.0 N / mm	70.0 N / mm
Residual tensile strength after aging	32.0 N / mm	35.0 N / mm
Relative residual tensile strength after aging	50.0 %	50.0 %
Elongation in as-delivered state	4.5 %	4.5 %
Elongation after aging	4.0 %	4.0 %

Annex 5

Energy economy and heat retention (BWR 6)

5 Thermal resistance

The nominal value of the additional thermal resistance R provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946:2007 from the nominal value of the insulation product's thermal resistance R_D given accompanied to the CE marking and from the thermal resistance of the rendering system R_{render} which is about 0.02 (m² · K)/W.

$R = R_D + R_{render}$

The thermal bridges caused by mechanical fixing (anchors, profiles) increases the thermal transmittance U. This influence had to take into account according to EN ISO 6946:2007

$U_c = U + \chi_p \cdot n$

Where:	U_c	corrected thermal transmittance [W/ (m² · K)]
	n:	number of anchors per m²
	χ_p:	local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
	χ_p = 0.004 W/K	for anchors with a galvanized steel screw with the head covered by a plastic material
	χ_p = 0.002 W/K	for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw

The thermal bridges caused by profiles are negligible.