

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-11/0300
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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Capatect WDVS-Phenolharzschaum

Product family
to which the construction product belongs

Product area code: 4
External Thermal Insulation Composite System with
rendering on phenolic foam for the use on building walls

Manufacturer

CAPAROL
Farben Lacke Bautenschutz GmbH
Roßdörfer Straße 50
64372 Ober-Ramstadt
DEUTSCHLAND

Manufacturing plant

CAPAROL
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DEUTSCHLAND

This European Technical Assessment
contains

16 pages including 3 annexes which form an integral part
of this assessment

Annex 4 Control Plan contains confidential information
and is not included in the European Technical
Assessment when that assessment is publicly available

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

ETAG 004, edition 2000, amended 2013,
used as EAD according to Article 66 Paragraph 3 of
Regulation (EU) No 305/2011.

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Specific Part

1 Technical description of the product

1.1 Definition of the kit

This product is an External Thermal Insulation Composite System (ETICS) 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 all components of the ETICS specified in this ETA.

The ETICS kit comprises a prefabricated insulation product of phenolic foam (PF) to be bonded and additional mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in the table below.

The insulation product is faced with a rendering system consisting of one base coat and finishing coat (site applied), in which the base coat contains reinforcement. The rendering 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.

1.2 Composition of the ETICS

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	Mechanically fixed ETICS with anchors and supplementary adhesive:		
	• Insulation product (see annex 1 for product characteristics) factory-prefabricated phenolic foam (PF)	–	40 to 200
	• Supplementary adhesives (minimum bonded surface 40 %)		
	– Capatect Klebe-und Armierungsmasse 186 M (cement based powder requiring addition of about 20 % – 24 % of water)	3.5 to 4.5	–
	– Capatect Klebe-und Spachtelmasse 190 (cement based powder requiring addition of about 20 % – 24 % of water)	about 4.0	–
	– Capatect Dämmkleber 185 (cement based powder requiring addition of about 20 % of water)	4.0 to 5.0	–
	– Capatect ArmaReno 700 (cement based powder requiring addition of about 20 % – 25 % of water)	4.0 to 5.0	–

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	<ul style="list-style-type: none"> Anchors for insulation product all anchors with ETA according to EAD330196-01-0604¹ with characteristics defined in annex 2 		
Base coat	Capatect CS-Klebe-und Armierungsmörtel 850 Cement based powder with additional redispersible synthetic-resin and aggregates requiring addition of 36 – 40 % of water.	5.5 to 8.0	5.0 to 7.0
Glass fibre mesh	Capatect Gewebe 650 Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m ² and mesh size of about 4.0 mm x 4.0 mm. (see annex 3 for product characteristics) 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/m ² and mesh size of about 6.0 mm x 6.0 mm. (see annex 3 for product characteristics)	– –	– –
Key coat	Putzgrund 610** Ready to use pigmented liquid – styrol acrylate For the compatibility with the finishing coats see below.	about 0.2 l/m ²	–
Finishing coat	To use with key coat "Putzgrund 610":** <ul style="list-style-type: none"> Cement based powders requiring addition of about 28 – 44 % of water: <ul style="list-style-type: none"> Capatect Mineral-Leichtputz R* (particle size 2.0 to 5.0 mm) Capatect Mineral-Leichtputz K* (particle size 2.0 to 5.0 mm) Cement based powder requiring addition of about 40 % of water: <ul style="list-style-type: none"> Capatect Modellier- und Spachtelputz 134 Ready to use pastes – acrylate/silicone resin emulsion: <ul style="list-style-type: none"> Capatect AmphiSilan Fassadenputz R* (particle size 2.0 to 3.0 mm) Capatect AmphiSilan Fassadenputz K* (particle size 1.5 to 3.0 mm) 	2.3 to 4.5 2.3 to 4.5 1.3 to 4.0 2.5 to 3.5 2.5 to 4.1	} regulated by particle size 2.0 to 5.0 } regulated by particle size***

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/m ²]	Thickness [mm]
Finishing coat	<ul style="list-style-type: none"> Ready to use pastes – silicate/organic hybrid dispersion Capatect ThermoSan Fassadenputz NQG R* (particle size 1.5 bis 3.0 mm) Capatect ThermoSan Fassadenputz NQG K* (particle size 1.0 bis 4.0 mm) 	<p>1.8 bis 2.6</p> <p>1.3 bis 3.2</p>	} regulated by particle size***
Ancillary material	Remains the responsibility of the manufacturer.		
<p>* K / R indicates different structures of finishing coats.</p> <p>** The instruction to the installer concerning the use of a key coat remains the responsibility of the ETA-holder.</p> <p>*** Total coat thickness (base coat and finishing coat) has to be ≥ 7.0 mm.</p>			

2 Specification of the intended use in accordance with the applicable European assessment Document (hereinafter called EAD)

2.1 Intended use

This ETICS is intended to be used as external insulation to the walls of buildings made of masonry (bricks, blocks, stones ...) or concrete (cast on site or as prefabricated panels) with and without rendering. The characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classification and for fixing of the ETICS by bonding and mechanically. It shall be designed to give the wall to which it is applied satisfactory thermal insulation.

The ETICS is non load-bearing construction element. It does not contribute directly to the stability of the wall on which it is installed, but it can contribute to durability by providing enhanced protection from the effects of weathering.

The ETICS can be used on new or existing (retrofit) vertical walls.

The ETICS is not intended to ensure the air tightness of the building structure.

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation (see clause 7.2.1 of ETAG 004) and on the national instructions.

The verifications and assessment methods on which this European Technical Assessment (hereinafter called ETA) is based lead to the assumption of a working life of the ETICS "Capatect WDVS-Phenolharzschaum" 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.

2.2 Manufacturing

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

2.3 Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation.

Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different. Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in the chapters 7.1 and 7.2 of ETAG 004 used as EAD, which summarize how information introduced in the ETA and related documents is intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

2.4 Packing, transport and storage

The information on packaging, transport and storage 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.

2.5 Use, maintenance, 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

3.0 General

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with annexes 1 to 3.

3.1 Mechanical resistance and stability (BWR 1)

not relevant

3.2 Safety in case of fire (BWR 2)

Reaction to fire (ETAG 004 - clause 5.1.2)

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1:2007
Base coat	max. 2.9 %	no flame retardant	B - s1,d0
PF- insulation product	In quantity ensuring Euroclass C - s2,d0 according to EN 13501-1	In quantity ensuring Euroclass C - s2,d0 according to EN 13501-1	
Anchors	-	-	
rendering system Base coat with finishing coat and compatible key coat indicated in clause 1.2:			
Capatect Mineral-Leichtputz R, Capatect Mineral-Leichtputz K, Capatect Modellier- und Spachtelputz 134	max. 3.7 %	no flame retardant	
Capatect AmphiSilan Fassadenputz R	max. 7.5 %	no flame retardant	
Capatect AmphiSilan Fassadenputz K	max. 8.4 %	min 3.0 %	
Capatect ThermoSan Fassadenputz NQG R, Capatect ThermoSan Fassadenputz NQG K	max. 8.9 %	no flame retardant	

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Water absorption (capillarity test) (ETAG 004 - clause 5.1.3.1)

Base coat:

- Water absorption after 1 hour < 1.0 kg/m²
- Water absorption after 24 hours < 0.5 kg/m²

Rendering system:

Rendering system: Base coat with finishing coat and compatible key coat indicated in clause 1.2:		Water absorption after 24 h	
		< 0.5 kg/m ²	≥ 0.5 kg/m ²
	Capatect Mineral-Leichtputz R30		x
	Capatect Mineral-Leichtputz R50		x
	Capatect Mineral-Leichtputz K20		x
	Capatect Mineral-Leichtputz K50	x	
	Capatect Modellier- und Spachtelputz 134	x	
	Capatect AmphiSilan Fassadenputz R/K		x
	Capatect ThermoSan Fassadenputz NQG R/K		x

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3.3.2 Hygrothermal behaviour (ETAG 004 - clause 5.1.3.2)

Pass (without defects)

Freeze/thaw behaviour

The ETICS with the finishing coats "Capatect Mineral-Leichtputz K/ R" "Capatect AmphiSilan Fassadenputz R/K" und "Capatect ThermoSan Fassadenputz NQG R/K" has been assessed as freeze/thaw resistant according to the simulated method.

3.3.3 Impact resistance (ETAG 004 - clause 5.1.3.3)

Rendering system: Base coat with finishing coat and compatible key coat indicated in clause 1.2:	Single standard mesh: "Capatect Gewebe 650"
Capatect Mineral-Leichtputz R	category III
Capatect Mineral-Leichtputz K	
Capatect Modellier- und Spachtelputz 134	
Capatect AmphiSilan Fassadenputz R/K	category II
Capatect ThermoSan Fassadenputz NQG R/K	

For the impact resistance for base coat and all finishing coats with the combination of "Capatect Gewebe 650" and "Capatect Panzergewebe 652" was no performance assessed.

3.3.4 Water vapour permeability (ETAG 004 - clause 5.1.3.4)

Rendering system: Base coat with finishing coat and compatible key coat indicated in clause 1.2	Equivalent air thickness s_d
Capatect Mineral-Leichtputz R30	≤ 1.0 m (Test result obtained with particle size 3 mm: 0.15 m)
Capatect Mineral-Leichtputz R50	≤ 1.0 m (Test result obtained with particle size 5 mm: 0.30 m)
Capatect Mineral-Leichtputz K20	≤ 1.0 m (Test result obtained with particle size 2 mm: 0.35 m)
Capatect Mineral-Leichtputz K50	≤ 1.0 m (Test result obtained with particle size 5 mm: 0.15 m)
Capatect Modellier- und Spachtelputz 134	≤ 1.0 m (Test result obtained with a layer thickness 5 mm: 0.14 m)
Capatect AmphiSilan Fassadenputz R,K	≤ 1.0 m (Test result obtained with particle size 3 mm: 0.19 m)
Capatect ThermoSan Fassadenputz NQG R/K	≤ 1.0 m (Test result obtained with particle size 3 mm: 0.24 m)

3.3.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR 034)

Essential characteristic	Performance
Release of dangerous substances	no performance assessed

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3.4 Safety and accessibility in use (BWR 4)

3.4.1 Bond strength between base coat and insulation product (PF) (ETAG 004 - clause 5.1.4.1.1)

Conditioning		
Initial state	After hygrothermal cycles	After freeze/thaw test
≥ 0.08 MPa	< 0.08 MPa but failure in the insulation product	Test not required because freeze/thaw cycles not necessary

3.4.2 Bond strength after ageing (ETAG 004 - clause 5.1.7.1)

Rendering system: Base coat with finishing coat and compatible key coat indicated in clause 1.2	Capatect Mineral-Leichtputz R	< 0.08 MPa but failure in the insulation product
	Capatect Mineral-Leichtputz K	
	Capatect Modellier- und Spachtelputz 134	
	Capatect AmphiSilan Fassadenputz R/K	
	Capatect ThermoSan Fassadenputz NQG R/K	

3.4.3 Fixing strength (displacement test) (ETAG 004 - clause 5.1.4.2)

Test not required therefore no limitation of ETICS length required.

3.4.4 Wind load resistance (ETAG 004 - clause 5.1.4.3)

3.4.4.1 Safety in use of mechanically fixed ETICS using anchors

The following failure loads only apply to the listed combination and the characteristics of the insulation product given in annex 1.

Table 1: Apply to all anchors listed in the Table in clause 1.2 mounted on the insulation panels surface.					
Thickness of PF insulation product				40 mm ≤ d < 60 mm	≥ 60 mm
Plate diameter of anchor				≥ Ø 60 mm	
Failure loads [N]	Anchors not placed at the panel joints (Pull-through test/dry conditions)	R _{panel}	Minimal: Average:	640 750	680 730
	Anchors placed at the panel joints (Pull-through test/dry conditions)	R _{joint}	Minimal: Average:	510 690	630 720
	Anchors not placed at the panel joints (Pull-through test/wet conditions)	R _{panel}	Minimal: Average:	625 670	660 725
	Anchors placed at the panel joints (Pull-through test/wet conditions)	R _{joint}	Minimal: Average:	465 595	615 700

Table 2: Apply for specified anchors corresponding with mentioned below table with near-surface mounting exclusively placed at the panel			
Thickness of PF-insulation product			≥ 80 mm
Plate diameter of anchor			Ø 112 mm
Failure load [N]	Anchors not placed at the panel joints (Pull-through test dry conditions)	R _{panel}	Minimal: 1035 Average: 1230
	Anchors not placed at the panel joints (Pull-through test wet conditions)	R _{panel}	Minimal: 1016 Average: 1205

The failure loads in table 2 apply to the following anchors with near-surface mounting but only on the following conditions of installation:

Anchor	Thickness of the PF panel [t]	Conditions of installation *
ejotherm STR U ejotherm STR U 2G (ETA-04/0023) STR Carbon (ETA-13/0009)	t ≥ 80 mm	Only in connection with the addition plate "Dübelteller VT 2G" exclusively placed at the panel
* according to the appropriate ETA of anchor		

3.4.5 Render strip tensile test (ETAG 004 - clause 5.5.4.1)

The average value of crack width of the base coat reinforced with the glass fibre mesh "Capatect Gewebe 650" measured at a render strain value of 1 % is about 0.06 mm.

3.5 Protection against noise (BWR 5)

For the protection against noise no performance was assessed for this product.

3.6 Energy economy and heat retention (BWR 6)

3.6.1 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 anchors 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

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

According to the European Commission decision 97/556/EC amended by the European Commission decision 2001/596/EC, the assessment and verification of constancy of performance system (AVCP) applies suitable following table (see Annex V to Regulation (EU) No 305/2011):

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"Capatect WDVS Phenolharzschaum"	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+
<p>⁽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)</p> <p>⁽²⁾ Products/materials not covered by footnote (1)</p> <p>⁽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)</p>			

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.

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beglaubigt:
Windhorst

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Annexes:

- Annex 1: Thermal insulation product characteristic
- Annex 2: Anchors
- Annex 3: Reinforcement

Annex 1: Thermal insulation product characteristic

Factory-prefabricated panels made of phenolic foam (PF) (PF panel "Kooltherm K 5") to EN 13166:2008, coated on both sides with glass fibre fleece shall be used, having the description and characteristics defined in the Table below.

Description and characteristics	For with anchors and supplementary adhesive mechanically fixed ETICS
Reaction to fire; EN 13501-1:2007	Class C - s2,d0
Thermal resistance [[m ² ·K)/W]	Defined in the CE marking in reference to EN 13166:2008
Tolerances	
Length [mm/panel]; length: 1200 mm; EN 822:1994	± 2
Width [mm/panel]; width: 400 mm; EN 822:1994	± 2
Thickness [mm]; EN 823:1994 - 40 mm ≤ d _N ≤ 100 mm - d _N ≥ 100 mm	± 2 - 2/+4
Squareness [mm/m]; EN 824:1994 - in length and width [mm/m] - in thickness [mm]	± 2 ≤ 2
Flatness [mm/m]; EN 825:1994	± 3.5
Dimensional stability	
under laboratory conditions [%]; EN 1603:1996 - relative changes in length and width	± 0.2
at specified temperature (48 h at (70 ± 2) °C) [%]; EN 1604:1996 - relative changes in length and width - relative changes in thickness	± 1 ± 2
under specified temperature and humidity conditions (48 h at (70 ± 2) °C/(90 ± 5) % RH) [%]; EN 1604:1996 - relative changes in length, width - relative changes in thickness	± 0.5 ± 1.5
at -20 °C (48 h at (-20 ± 2) °C) [%]; EN 1604:1996 - relative changes in length and width - relative changes in thickness	± 0.5 ± 1.5
Water absorption (short term immersion) [kg/m ²]; EN 1609:1997	W _p ≤ 0.9
Water vapour diffusion resistance factor; EN 12086:1997	μ = 35
Tensile strength perpendicular to the faces* [kPa]; EN 1607:1996 PF without coating (fleece) - in dry conditions	σ _{mt} ≥ 72
- in wet conditions**	σ _{mt} ≥ 50

Description and characteristics	For with anchors and supplementary adhesive mechanically fixed ETICS
Tensile strength perpendicular to the faces* [kPa]; EN 1607:1996 PF with coating (fleece)	
- in dry conditions	$\sigma_{mt} \geq 40$
- in wet conditions**	$\sigma_{mt} \geq 15$
Bending strength* [kPa]; EN 12089:1997	$\sigma_b \geq 200$
Apparent density [kg/m ³]; EN 1602:1996	$35 < \rho_a < 45$
Closed cell content [%]; EN ISO 4590:2003	$\Psi_o \geq 90$
Shear strength* [kPa]; EN 12090:1997	$50 < f_{rk} \leq 70$
Shear modulus [MPa]; EN 12090:1997	$1.8 \leq G_m \leq 2.4$
Testing of characteristics see EN 13166:2008.	
* Minimal value of all single values	
** According to ETAG 004 clause 5.2.4.1.2	

Annex 2: Anchors

All anchors with ETA according to EAD330196-01-0604¹ with characteristics having the description below shall be used in the mechanically fixed ETICS:

- plate diameter of anchor ≥ 60 mm
- plate stiffness ≥ 0.3 kN/mm
- load resistance of the anchor plate ≥ 1.0 kN

These characteristics and the characteristic tension resistance of the anchors shall be taken from the corresponding ETA.

Annex 3: Reinforcement (glass fibre mesh)

Characteristics (alkali resistance): Pass

	Description	Residual strength after ageing [N/mm]	Relative residual resistance after ageing of the strength in the as-delivered state [%]
"Capatect Gewebe 650"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m ² and mesh size of about 4.0 mm x 4.0 mm	≥ 20	≥ 50
"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/m ² and mesh size of about 6.0 mm x 6.0 mm	no performance assessed	no performance assessed