



European Technical Assessment

ETA-22/0553-version 1 of 24/11/2022

GENERAL PART

**Technical Assessment Body issuing the
European Technical Assessment:**

Centre Scientifique et Technique du Bâtiment
(CSTB)

Trade name of the construction product:

EDIL-Therm Minéral

**Product family to which the construction
product belongs:**

Product Area Code: 04
External Thermal Insulation Composite System
with rendering (ETICS)

Manufacturer:

EDILTECO France SAS
9 avenue de l'Europe - Saint Germain sur Moine
FR – 49230 - SEVREMOINE

Manufacturing plant(s):

EDILTECO France SAS
9 avenue de l'Europe - Saint Germain sur Moine
FR – 49230 - SEVREMOINE

**This European Technical Assessment
contains:**

38 pages including 4 Annexes which form an
integral part of this assessment

Annex 5 contains confidential information and
is/are 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:**

European Assessment Document (EAD)
040083-00-0404
External Thermal Insulation Composite Systems
(ETICS) with renderings

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SPECIFIC PART

1. Technical description of the product

The External Thermal Insulation Composite System “**EDIL-Therm Minéral**”, subject to this European Technical Assessment (hereinafter ETA) and called ETICS in the following text, is a kit designed and installed in accordance with the Manufacturer’s instructions, deposited with the CSTB. The ETICS comprises the components listed in the following table, which are factory-produced by the Manufacturer or a supplier. The ETICS is made up on site from these components.

Different trade names are used for the same component. Correspondence between trade names of the components is given in Annex 5 of this ETA.

The ETICS also includes ancillary materials which are defined in clause 1.3.13 of the EAD¹. They shall be used in accordance with the Manufacturer’s instructions.

The ETICS is described according to its method of fixing, as defined in clause 1.1 of the EAD .

Method of fixing	Component	Coverage (kg/m ²)	Thickness (mm)
Mechanically fixed ETICS with anchors	Insulation product		
	Insulation products, mineral wool (MW):		
	Rock wool panels		
	ECOROCK MONO, by Rockwool, see Annex 1 (1/4)		50 to 160
	ECOROCK DUO, by Rockwool, see Annex 1 (2/4)		50 to 240
	ISOVER TF 36, by Saint-Gobain Isover, see Annex 1 (3/4)		50 to 200
	FKD-MAX C2, by Knauf Insulation, see Annex 1 (4/4)		60 to 300
	Supplementary adhesives		
	ECAP ADP (grey version): grey powder requiring addition of about 21% wt. water, consisting of cement binder, sand and specific additives.	3.0 [powder]	—
	ECAP ADP (white version): white powder requiring addition of about 24% wt. water, consisting of cement binder, sand and specific additives.	3.0 [powder]	—
	ECAP APR: ready-to-use paste, formulated with a synthetic copolymer in aqueous dispersion binder.	2.5 [prepared]	—
	Anchors for insulation product		
	Plastic anchors, see Annex 2	—	—

¹ EAD 040083-00-0404 is available on the EOTA website: www.eota.eu.

Method of fixing	Component	Coverage (kg/m ²)	Thickness (mm)
Every method of fixing	Base coats		
	ECAP ADP (grey version): grey powder requiring addition of about 21% wt. water, consisting of cement binder, sand and specific additives	About 5.5 [powder]	Mean (dry): 4.5 Minimal (dry): 4.0
	ECAP ADP (white version): white powder requiring addition of about 24% wt. water, consisting of cement binder, sand and specific additives		
	Meshes		
	Glass fibre meshes (standard and reinforced), see Annex 3		
	Key coats		
	ECAP F: pigmented liquid (to be diluted with 10% wt. water maximum) formulated with an acrylic copolymer in aqueous dispersion, - to be applied optionally before the finishing coats: ECAP AC K, ECAP AC R and ECAP AXC K.	0.20 [prepared]	—
	ECAP FS: pigmented liquid (to be diluted with 10% wt. water maximum) formulated with potassium silicate binder, to be applied mandatory before the finishing coats: ECAP STC K and ECAP STC R.	0.20 [prepared]	—

Method of fixing	Component	Coverage (kg/m ²)	Thickness (mm)
Every method of fixing	Finishing coats		
	Ready-to-use pastes - acrylic binder:		Regulated by particles size
	<ul style="list-style-type: none">• ECAP AC K<ul style="list-style-type: none">- particles size: 1.2 mm- particles size: 1.5 mm- particles size: 2.0 mm• ECAP AC R<ul style="list-style-type: none">- particles size: 1.2 mm- particles size: 1.5 mm- particles size: 2.0 mm	2.0 to 2.2 2.6 to 2.8 2.8 to 3.2 2.0 to 2.2 2.6 to 2.8 2.8 to 3.2	
	Ready-to-use pastes – acrylic binder with siloxane additives:		
	<ul style="list-style-type: none">• ECAP AXC K<ul style="list-style-type: none">- particles size: 1.2 mm- particles size: 1.5 mm- particles size: 2.0 mm	2.0 to 2.2 2.6 to 2.8 2.8 to 3.2	
	Ready-to-use pastes – silicate binder:		
<ul style="list-style-type: none">• ECAP STC K<ul style="list-style-type: none">- particles size: 1.2 mm- particles size: 1.5 mm- particles size: 2.0 mm• ECAP STC R<ul style="list-style-type: none">- particles size: 1.2 mm- particles size: 1.5 mm- particles size: 2.0 mm	2.0 to 2.2 2.6 to 2.8 2.8 to 3.2 2.0 to 2.2 2.6 to 2.8 2.8 to 3.2		
	Ready-to-use paste formulated with an acrylic copolymer in aqueous dispersion binder to apply for the bonding of synthetic briquettes.		5 to 7
	<ul style="list-style-type: none">• Elastolith associated with synthetic briquettes	3.1 to 3.4 48 to 76 units / m ²	
Ancillary materials	Descriptions in accordance with § 1.3.13 of the EAD Remain under the ETA-Manufacturer responsibilities		

The ETICS is designed to give the walls to which it is applied satisfactory thermal insulation. The minimum thermal resistance of the ETICS shall be higher than 1.0 m².K/W.

The components are protected from moisture during transport and storage by means of appropriate packaging, unless other measures are foreseen by the Manufacturer for this purpose.

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

This ETICS is intended to be used as thermal insulation of buildings' external walls made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels).

The ETICS can be installed on new or existing (retrofit) vertical walls. It can also be installed on horizontal or inclined surfaces which are not exposed to precipitation.

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

The ETICS is not intended to ensure the airtightness of the walls.

The provisions made in this ETA are based on an assumed working life of at least 25 years, provided that the construction works are subject to appropriate design, execution, maintenance and repair. The indications given as to the working life cannot be interpreted as a guarantee given by the Manufacturer or the Technical Assessment Body, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

The ETICS is installed in accordance with Manufacturer's installation instructions.

Design, execution, maintenance and repair of the construction works shall be done in accordance with national instructions.

3. Performances of the product and references to the methods used for their assessment

Performances of the ETICS, related to the basic requirements for construction works (hereinafter BWR), were determined according to chapters 2 of the EAD.

These performances, given in the following paragraphs, are valid as long as the components are the ones described in § 1 and Annexes 1 to 4 of this ETA.

3.1 Safety in case of fire (BWR 2)

No	Essential characteristic	Assessment method (EAD clause)	Performance
1	Reaction to fire	2.2.1	
	- Reaction to fire of ETICS	2.2.1.1	A2-s1, d0 See clause 3.1.1 for the details
	- Reaction to fire of thermal insulation material	2.2.1.2	Rock Wool: Class A1
	- Reaction to fire of PU foam adhesive	2.2.1.3	Not applicable
2	Façade fire performance	2.2.2	No performance assessed
3	Propensity to undergo continuous smouldering of ETICS	2.2.3	No performance assessed

Reaction to fire of ETICS

Configuration	Declared organic content ⁽¹⁾	Declared flame retardant content ⁽¹⁾	Class according to EN 13501-1
<ul style="list-style-type: none"> Supplementary adhesive: ECAP APR ECAP ADP (grey and white version) Insulation product: MW (Stone/Rock Wool) boards Reaction to fire Class A1 Thickness ≥ 20 mm Density ≤ 155 kg/m³ Base coats: ECAP ADP (grey and white version) Meshes: <ul style="list-style-type: none"> - R 131 A 101 C+ - R 131 A 102 C+ - SSA-1363 F+ - 03-1 C+ - ES-049/F Key coats: <ul style="list-style-type: none"> - ECAP F - ECAP FS Finishing coats: <ul style="list-style-type: none"> - ECAP AC K / R - ECAP AXC K - ECAP STC K / R - Elastolith associated with synthetic briquettes 	<p>Base coats: 1.9%</p> <p>Key coats: 3.46 to 7.46%</p> <p>Finishing coats: 3.75 to 8.43%</p>	<p>Base coats: 0.0%</p> <p>Key coats: 0.0%</p> <p>Finishing coats: 0.0 to 11.8%</p>	A2-s1, d0

⁽¹⁾ Percentage declared by the Manufacturer, relative to the dried weight of the component as delivered.

3.2 Hygiene, health and the environment (BWR 3)

No	Essential characteristic	Assessment method (EAD clause)	Performance
4	Content, emission and/or release of dangerous substances – leachable substances	2.2.4	No performance assessed
5	Water absorption	2.2.5	-
	- of the base coat and the rendering system	2.2.5.1	See cl. 3.2.1
	- of the thermal insulation product	2.2.5.2	$\leq 1 \text{ kg/m}^2$ (EN 1609 - Method A)
6	Water-tightness of the ETICS: Hygrothermal behaviour	2.2.6	Hygrothermal cycles have been performed on a rig. The ETICS is assessed resistant to hygrothermal cycles, it means system "EDIL-THERM Minéral" passed the test without defects.
7	Water-tightness: Freeze thaw performance	2.2.7	See cl. 3.2.2: The water absorption of the base coat as well as the rendering systems is less than 0.5 kg/m^2 for all configurations of the ETICS. The ETICS is so assessed as free/thaw resistant.
8	Impact resistance	2.2.8	See cl. 3.2.3
9	Water vapour permeability	2.2.9	-
	- of the rendering system (equivalent air thickness s_d)	2.2.9.1	See cl. 3.2.4
	- of thermal insulation product (water-vapour resistance factor)	2.2.9.2	$\mu = 1$

3.2.1 Water absorption – capillarity test

3.2.1.1 Water absorption of the base coat

- After 1 hour: mean value of the water absorption: 0.06 kg/m²
- After 24 hours: mean value of the water absorption: 0.39 kg/m²

3.2.1.2 Water absorption of the rendering system

Rendering system: Base coat + finishing coat indicated below	Mean value of the water absorption (kg/m ²) after	
	1 hour	24 hours
With or without ECAP F: - ECAP AC K - ECAP AC R	0.03	0.27
	Test result obtained with ECAP AC K (2.0 mm)	
With or without ECAP F: - ECAP AXC K	0.03	0.13
	Test result obtained with ECAP AXC K (2.0 mm)	
With ECAP FS: - ECAP STC K - ECAP STC R	0.02	0.13
	Test result obtained with ECAP STC K (2.0 mm)	
Elastolith associated with synthetic briquettes	0.05	0.22

3.2.2 Freeze-thaw behaviour

The water absorption of the base coat as well as the rendering systems is less than 0.5 kg/m² for all configurations of the ETICS.

3.2.3 Impact resistance

Rendering system: Base coat + finishing coat indicated below		Presence of cracks	Maximum impact diameter (mm)	Use category
With or without ECAP F: - ECAP AC K - ECAP AC R	single standard mesh	Yes – 3J Yes – 10J	22 – 3J 50 – 10J	Category III
	double standard mesh	Yes – 3J Yes – 10J	15 – 3J 43 – 10J	Category III
	reinforced mesh + standard mesh	No – 3J Yes – 10J	8 – 3J 31 – 10J	Category II
With or without ECAP F: - ECAP AXC K	single standard mesh	Yes – 3J Yes – 10J	24 – 3J 62 – 10J	Category III
	double standard mesh	Yes – 3J Yes – 10J	17 – 3J 35 – 10J	Category III
	reinforced mesh + standard mesh	No – 3J Yes – 10J	10 – 3J 31 – 10J	Category II
With ECAP FS: - ECAP STC K - ECAP STC R	single standard mesh	Yes – 3J Yes – 10J	40 – 3J 45 – 10J	Category III
	double standard mesh	Yes – 3J Yes – 10J	17 – 3J 37 – 10J	Category III
	reinforced mesh + standard mesh	No – 3J Yes – 10J	9 – 3J 30 – 10J	Category II
Elastolith associated with synthetic briquettes	single standard mesh	Yes – 3J Yes – 10J	8 – 3J 28 – 10J	Category III
	double standard mesh	No – 3J Yes – 10J	– 3J 20 – 10J	Category II
	reinforced mesh + standard mesh	No – 3J Yes – 10J	– 3J 18 – 10J	Category II

3.2.4 Water vapour permeability – resistance to water vapour diffusion

Rendering system: Base coat + finishing coat indicated below	Thickness of rendering system (mm)	Equivalent air thickness s_d (m)
With or without ECAP F: - ECAP AC K - ECAP AC R	6.9	≤ 1.0 (Test result obtained with ECAP AC K (2.0 mm): 0.4)
With or without ECAP F: - ECAP AXC K	6.3	≤ 1.0 (Test result obtained with ECAP AXC K (2.0 mm): 0.6)
With ECAP FS: - ECAP STC K - ECAP STC R	6.6	≤ 1.0 (Test result obtained with ECAP STC K (2.0 mm): 0.4)
Elastolith associated with synthetic briquettes	10.4	≤ 1.0 (Test result obtained: 0.8)

3.3 Safety and accessibility in use (BWR 4)

No	Essential characteristic	Assessment method (EAD clause)	Performance
10	Bond strength	2.2.11	-
	- bond strength between the base coat and the thermal insulation product (mortar or paste)	2.2.11.1	See cl. 3.3.1.1
	- bond strength between the adhesive and the substrate	2.2.11.2	Not applicable
	- bond strength between the adhesive and the thermal insulation product	2.2.11.3	Not applicable
	- bond strength of foam adhesives	2.2.11.4	Not applicable
11	Fixing strength	2.2.12	Test not required because the ETICS fulfils the following criteria: $E_d < 50,000 \text{ N/mm}$

No	Essential characteristic	Assessment method (EAD clause)	Performance
12	Wind load resistance of ETICS	2.2.13	-
	- pull-through tests of fixing	2.2.13.1	See cl. 3.3.2.1
	- static foam block test	2.2.13.2	Not applicable
	- dynamic wind uplift test	2.2.13.3	Not applicable
13	Tensile test perpendicular to the faces of the thermal insulation product	2.2.14	-
	- in dry conditions	2.2.14.1	See cl 3.3.3.1
	- in wet conditions	2.2.14.2	No performance assessed
14	Shear strength and shear modulus of elasticity test of ETICS	2.2.15	Not relevant because the system is mechanically fixed with anchors
15	Pull-through resistance of fixing from profiles	2.2.16	Not relevant because the system is mechanically fixed with anchors
16	Render strip tensile test	2.2.17	No performance assessed
17	Shear strength and shear modulus of foam adhesive	2.2.18	Not relevant
18	Post expansion behaviour of foam adhesives	2.2.19	Not relevant
19	Bond strength after ageing	2.2.20	-
	- bond strength after ageing of finishing coat tested on the rig	2.2.20.1	See cl. 3.3.4
	- bond strength after ageing of finishing coat not tested on the rig	2.2.20.2	See cl. 3.3.4
20	Mechanical and physical characteristics of the mesh	2.2.21	-
	- Tensile strength of the glass fibre mesh	2.2.21.1 2.2.21.2	See cl. 3.3.5
	- Protection of metal mesh	2.2.21.3	Not relevant

3.3.1 Bond strength: Bond strength between the base coat and the thermal insulation product

Base coat(s) and thermal insulation product indicated below:	Failure resistance (kPa)		
	Initial state	After conditioning	Type of failure
ECAP ADP Grey on the insulation product "ECOROCK MONO"	Minimal: 8	Minimal: 11	Cohesive in the insulation product
	Average: 11	Average: 12	
ECAP ADP White or ECAP ADP Grey on the insulation product "ECOROCK DUO"	Minimal: 10	Minimal: 10	Cohesive in the insulation product
	Average: 11	Average: 11	
ECAP ADP White or ECAP ADP Grey on the insulation product "ISOVER TF 36"	Minimal: 5	Minimal: 7	Cohesive in the insulation product
	Average: 6	Average: 9	
ECAP ADP White or ECAP ADP Grey on the insulation product "FKD-MAX C2"	Minimal: 5	Minimal: 1	Cohesive in the insulation product
	Average: 5	Average: 4	

3.3.2 Wind load resistance of the ETICS

3.3.2.1 Pull-through tests of fixings

Anchors	Plate diameter (mm)	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
	Load resistance (kN)	≥ 1.7	
Insulation product	Type	ECOROCK MONO (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 10	
	Thickness (mm)	≥ 50	≥ 120
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.444	Minimal: 1.023
		Average: 0.475	Average: 1.044
	Anchors placed at the panel joints (dry conditions): R_{joint} (kN/fixing)	Minimal: 0.362	Minimal: 0.500
		Average: 0.404	Average: 0.679

Anchors	Trade name	termoz SV II ecotwist		
	Helix dimensions	Diameter: 66 Height: 27		
Insulation product	Type	ECOROCK MONO (Rockwool)		
	Tensile strength perpendicular to the face (kPa)	≥ 10		
	Thickness (mm)	Mono-density product		
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.687		
		Average: 0.752		

Anchor termoz SV II ecotwist can only be used as mounted countersunk.

Anchors	Plate diameter (mm)	≥ 60		
	Plate stiffness (kN/mm)	≥ 0.4		
	Load resistance (kN)	≥ 1.7		
Insulation product	Type	ECOROCK DUO (Rockwool)		
	Tensile strength perpendicular to the face (kPa)	≥ 7.5		
	Thickness (mm)	Dual density product		
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	≥ 50	≥ 80	≥ 120
		Minimal: 0.339	Minimal: 0.348	Minimal: 0.454
	Anchors not placed at the panel joints (wet conditions*): R_{panel} (kN/fixing)	Average: 0.365	Average: 0.410	Average: 0.503
		Minimal: 0.198	-	Minimal: 0.368
		Average: 0.229	-	Average: 0.406

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors	Plate diameter (mm)	≥ 90	
	Plate stiffness (kN/mm)	≥ 0.4	
	Load resistance (kN)	≥ 1.7	
Insulation product	Type	ECOROCK DUO (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5	
		Dual density product	
Maximum load (Pull-through test)	Thickness (mm)	≥ 80	≥ 120
	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	-	Minimal: 0.511
		-	Average: 0.611
	Anchors placed at the panel joints (dry conditions): R_{joint} (kN/fixing)	Minimal: 0.362	-
		Average: 0.392	-

Anchors	Trade name	Ejothem STR U / STR U 2G + Ejothem VT 2G	
	Dimensions	Diameter: Ejothem STR U / STR U 2G: 60 mm Ejothem VT 2G: 110 mm	
Insulation product	Type	ECOROCK DUO (Rockwool)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5	
		Dual density product	
Maximum load (Pull-through test)	Thickness (mm)	≥ 120	
	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.699	
		Average: 0.838	

Anchors Ejothem STR U or Ejothem STR U 2G, associated with Ejothem VT 2G can only be used as mounted countersunk.

Anchors	Trade name	termoz SV II ecotwist
	Helix dimensions	Diameter: 66 Height: 27
Insulation product	Type	ECOROCK DUO (Rockwool)
	Tensile strength perpendicular to the face (kPa)	≥ 7.5 Dual-density product
	Thickness (mm)	100
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.357
		Average: 0.413

Anchor termoz SV II ecotwist can only be used as mounted countersunk.

Anchors	Plate diameter (mm)	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
	Load resistance (kN)	≥ 2.08	
Insulation product	Type	ISOVER TF 36 (Saint-Gobain ISOVER)	
	Tensile strength perpendicular to the face (kPa)	≥ 10 Mono-density product	
	Thickness (mm)	≥ 50	≥ 120
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.292	Minimal: 0.414
		Average: 0.342	Average: 0.432
	Anchors placed at the panel joints (dry conditions): R_{joint} (kN/fixing)	Minimal: 0.238	Minimal: 0.332
		Average: 0.281	Average: 0.398
	Anchors not placed at the panel joints (wet conditions*): R_{panel} (kN/fixing)	Minimal: 0.243	Minimal: 0.355
		Average: 0.286	Average: 0.375
	Anchors placed at the panel joints (wet conditions*): R_{joint} (kN/fixing)	Minimal: 0.177	Minimal: 0.263
		Average: 0.215	Average: 0.301

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors	Trade name	termoz SV II ecotwist
	Helix dimensions	Diameter: 66 Height: 27
Insulation product	Type	ISOVER TF 36 (Saint-Gobain ISOVER)
	Tensile strength perpendicular to the face (kPa)	≥ 10 Mono-density product
	Thickness (mm)	100
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.257
		Average: 0.299

Anchor termoz SV II ecotwist can only be used as mounted countersunk.

Anchors	Plate diameter (mm)	≥ 60	
	Plate stiffness (kN/mm)	≥ 0.4	
	Load resistance (kN)	≥ 1.44	
Insulation product	Type	FKD MAX C2 (Knauf Insulation)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5 Mono-density product	
	Thickness (mm)	≥ 80	≥ 140
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.600	Minimal: 0.726
		Average: 0.653	Average: 0.833
	Anchors placed at the panel joints (dry conditions): R_{joint} (kN/fixing)	Minimal: 0.462	Minimal: 0.519
		Average: 0.495	Average: 0.570
	Anchors not placed at the panel joints (wet conditions*): R_{panel} (kN/fixing)	Minimal: 0.372	Minimal: 0.526
		Average: 0.400	Average: 0.615
	Anchors placed at the panel joints (wet conditions*): R_{joint} (kN/fixing)	Minimal: 0.297	Minimal: 0.369
		Average: 0.319	Average: 0.398

* 28 days at (70 ± 2)°C / (95 ± 5)% RH + drying period at (23 ± 2)°C / (50 ± 5)% HR until constant weight.

Anchors	Trade name	Ejotharm STR U / STR U 2G + Ejotharm VT 90	
	Dimensions	Diameter: Ejotharm STR U / STR U 2G: 60 mm Ejotharm VT 90: 90 mm	
Insulation product	Type	FKD MAX C2 (Knauf Insulation)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5 Mono density product	
	Thickness (mm)	≥ 80	≥ 140
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.766	Minimal: 0.949
		Average: 0.826	Average: 1.010
	Anchors placed at the panel joints (dry conditions): R_{joint} (kN/fixing)	Minimal: 0.647	Minimal: 0.702
		Average: 0.692	Average: 0.727

Anchors	Trade name	termoz SV II ecotwist	
	Helix dimensions	Diameter: 66 Height: 27	
Insulation product	Type	FKD MAX C2 (Knauf Insulation)	
	Tensile strength perpendicular to the face (kPa)	≥ 7.5 Mono-density product	
	Thickness (mm)	100	
Maximum load (Pull-through test)	Anchors not placed at the panel joints (dry conditions): R_{panel} (kN/fixing)	Minimal: 0.403	
		Average: 0.509	

Anchor termoz SV II ecotwist can only be used as mounted countersunk.

The design wind load resistance of the ETICS fixed with anchors is determined as follows:

$$R_d = \frac{R_{\text{panel}} \cdot n_{\text{panel}} + R_{\text{joint}} \cdot n_{\text{joint}}}{\gamma}$$

n_{panel} number of anchors not placed at the panel joints, per m²

n_{joint} number of anchors placed at the panel joints, per m²

γ national safety factor

3.3.3 Tensile test perpendicular to the faces of the thermal insulation product

3.3.3.1 Tensile strength perpendicular to the faces in dry conditions

See Declaration of Performances of insulation product.

3.3.3.2 Tensile strength perpendicular to the faces in wet conditions

No performance assessed.

3.3.4 Bond strength after ageing

Rendering system: Base coat + finishing coat indicated below	Bond strength (kPa)	Type of failure
With or without ECAP F: - ECAP AC K - ECAP AC R	Minimal: 110	Cohesive in the insulation product (EPS)
	Average: 120 (Test result obtained with ECAP AC K (2.0 mm))	
With or without ECAP F: - ECAP AXC K	Minimal: 100	
	Average: 120 (Test result obtained with ECAP AXC K (2.0 mm))	
With ECAP FS: - ECAP STC K - ECAP STC R	Minimal: 190	
	Average: 210 (Test result obtained with ECAP STC K (2.0 mm))	
Elastolith associated with synthetic briquettes	Minimal: 100	
	Average: 160	

3.3.5 Mechanical and physical characteristics of the mesh: Tensile strength of the glass fibre mesh

Producer's trade name	Tensile strength in the as-delivered state (N/mm)		Elongation at break in the as-delivered state (%)		Resistance after ageing			
					Residual resistance (N/mm)		Relative residual resistance (%)	
	Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
R 131 A 101 C+	40.3	48.3	4.0	4.6	31.0	25.9	76.9	53.6
SSA-1363 F+	42.3	47.6	4.0	4.0	44.0	45.9	100.0	96.5
R 131 A 102 C+	48.1	46.4	4.0	3.9	29.6	32.8	61.6	70.8
03-1 C+	44.5	52.9	4.0	4.0	43.1	46.8	97.9	88.5
ES-049/F	44.9	53.9	3.4	3.4	24.5	32.5	54.5	60.3

3.4 Protection against noise (BWR 5)

No	Essential characteristic	Assessment method (EAD clause)	Performance
21	Airborne sound insulation of ETICS	2.2.22.1	No performance assessed
	Dynamic stiffness of the thermal insulation product	2.2.22.2	No performance assessed
	Air flow resistance of the thermal insulation product	2.2.22.3	No performance assessed

3.5 Energy economy and heat retention (BWR 6)

No	Essential characteristic	Assessment method (EAD clause)	Performance
22	Thermal resistance and thermal transmittance of ETICS	2.2.23	Defined in clause 2.2.23 of EAD See cl. 3.5.1
	Thermal resistance and thermal transmittance of the thermal insulation product	2.2.23.1	See cl. 3.5.2

3.5.1 Thermal resistance and thermal transmittance of ETICS

The calculated value of thermal resistance of ETICS with minimal thickness and highest value of thermal conductivity of the insulation material is:

$R_{ETICS} = R_{insulation} + R_{render} [(m^2.K)/W]$	$1.40 + 0.02 = 1.42$
---	----------------------

3.5.2 Thermal resistance and thermal transmittance of the thermal insulation product

See Declaration of performances of the insulation product.

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

According to Decision 97/556/EC (Decision of the Commission of 14 July 1997, L 229 of 20.8.1997, p. 15), as amended by Decision 2001/596/EC (Decision of the Commission of 8 January 2001, L 209 of 2.8.2001, p. 33)², the systems of AVCP given in the following table apply:

Product	Intended use	Levels or classes (Reaction to fire)	System
External Thermal Insulation Composite Systems with rendering	in external walls subject to fire regulation	A1 ⁽¹⁾ , A2 ⁽¹⁾ , B ⁽¹⁾ or C ⁽¹⁾	1
		- A1 ⁽²⁾ , A2 ⁽²⁾ , B ⁽²⁾ , C ⁽²⁾ - D, E, F - (A1 to E) ⁽³⁾	2+
	in external walls not subject to fire regulation	any	2+

⁽¹⁾ Products/materials for which as 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).

The systems of AVCP are described in Annex V of Regulation (EU) No 305/2011, as amended by Delegated Regulation (EU) No 568/2014.

4. 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 the CSTB.

The control plan is given in Annex 5. As the control plan contains confidential information, Annex 5 is not included in the published parts of this ETA.

Issued in Marne-la-Vallée on 24/11/2022 by



Aurélie BAREILLE
Head of "Certification and Assessment" Division
"Building Envelope" Direction

² Decisions are published in the *Official Journal of the European Union (OJEU)*, see www.new.eu-lex.europa.eu/oj/direct-access.html.

Factory-prefabricated, uncoated boards made of mineral wool **ECOROCK MONO** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m^2) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13162		Defined in the CE marking
Dimensional tolerances	Thickness / EN 823	T5 [-1 % or -1 mm / +3 mm]
Dimensional stability	Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH	DS(70,90) [$\leq 1\%$]
Water absorption (partial immersion) / EN 1609 – method A		WS [$\leq 1.0 \text{ kg/m}^2$]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [$\leq 3.0 \text{ kg/m}^2$]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 10 [$\geq 10 \text{ kPa}$]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10)30

ETICS EDIL-Therm Minéral	ANNEX 1 (1/4) of ETA-22/0553-version 1
Insulation product for mechanically-fixed ETICS with anchors	

Factory-prefabricated, uncoated boards made of mineral wool **ECOROCK DUO** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m^2) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13162		Defined in the CE marking
Dimensional tolerances	Thickness / EN 823	T5 [-1 % ou -1 mm / +3 mm]
Dimensional stability	Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH	DS(70,90) [$\leq 1\%$]
Water absorption (partial immersion) / EN 1609 – method A		WS [$\leq 1.0 \text{ kg/m}^2$]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [$\leq 3.0 \text{ kg/m}^2$]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 7.5 [$\geq 7.5 \text{ kPa}$]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10)15

ETICS EDIL-Therm Minéral		ANNEX 1 (2/4) of ETA-22/0553-version 1
Insulation product for mechanically-fixed ETICS with anchors		

Factory-prefabricated, uncoated boards made of mineral wool **ISOVER TF 36** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m²) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13162		Defined in the CE marking
Dimensional tolerances	Thickness / EN 823	T5 [-1% or -1 mm / +3 mm]
Dimensional stability	Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m ²]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [≤ 3.0 kg/m ²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 10 [≥ 10 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		AFr 43 [43 kPa.s/m ²]
Compressive strength / EN 826		CS(10/Y)30 [≥ 30 kPa]

ETICS EDIL-Therm Minéral		ANNEX 1 (3/4) of ETA-22/0553-version 1
Insulation product for mechanically-fixed ETICS with anchors		

Factory-prefabricated, coated boards made of mineral wool **FKD-MAX C2** (MW) according to EN 13162+A1 and having characteristics described in the following table. Mass per unit area (kg/m²) depends on both thickness of the board and density of mineral wool.

Reaction to fire / EN 13501-1		Class A1
Thermal resistance / EN 13162		Defined in the CE marking
Dimensional tolerances	Thickness / EN 823	T5 [-1% or -1 mm / +3 mm]
Dimensional stability	Under specified temperature and humidity / EN 1604: 48 h at 70°C and 90% RH	DS(70,90) [≤ 1%]
Water absorption (partial immersion) / EN 1609 – method A		WS [≤ 1.0 kg/m ²]
Longterm water absorption (partial immersion) / EN 1609		WL(P) [≤ 3.0 kg/m ²]
Water vapour diffusion resistance factor (μ) / EN 12086		MU1
Tensile strength perpendicular to the faces in dry conditions / EN 1607		TR 7.5 [≥ 7.5 kPa]
Dynamic stiffness / EN 29052-1		No performance determined
Air flow resistance / EN 29053		No performance determined
Compressive strength / EN 826		CS(10)20 [≥ 20 kPa]

ETICS EDIL-Therm Minéral	ANNEX 1 (4/4) of ETA-22/0553-version 1
Insulation products for mechanically-fixed ETICS with anchors	

Anchors or powder actuated fasteners with ETA according to European Technical Approval Guideline No 014 (hereinafter ETAG 014) or to European Assessment Document (EAD) 330196-ED-0604 (hereinafter EAD "anchors") and 330965-ED-0601 (for the fastener). The anchors are composed of a plastic expansion sleeve with a plate having diameter of 60 mm and a plastic or metallic nail or screw. The powder actuated fasteners are composed of a plastic expansion sleeve with a plate having diameter of 60 mm and a metallic fastener. Use categories and characteristic resistances in the substrate are given in each anchor's ETA. Validity of the anchor's ETA shall be checked before using the anchor.

Trade name	ETA reference	Mounting ⁽¹⁾	Plate stiffness (kN/mm)	Load resistance (kN)
Ejot H1 eco	11/0192	a	0.6	1.4
Ejotherm H2 eco	15/0740	a	0.97	1.25
Ejot H3	14/0130	a	0.6	1.25
Ejotherm STR U, STR U 2G	04/0023	a	0.6	2.08
Ejot SDF-S plus U / plus UB + Rosace TE	04/0064	a	0.7	2.24
Fischer TERMOZ CN 8 / CN 8R	09/0394	a	0.6	1.7
Fischer TERMOZ CN plus 8	09/0394	a, b	0.6	1.7
Fischer TERMOZ CS II 8	14/0372	a	1.29	2.61
Fischer Termoz PN 8	09/0171	a	0.6	1.7
Termoz SV II Ecotwist	12/0208	b	-	-
Koelner KI 10	07/0291	a	0.5	2.1
Koelner KI 10N	07/0221	a	0.5	1.23
Rawlplug Facade Insulation Fixing R-TFIX-8M	17/0592	a	1.0	1.5
Rawlplug Facade Insulation Fixing R-TFIX-8S	17/0161	a, b	0.6	2.0
Hilti XI-FV (fastener)	17/0304	a	0.4	1.6
Hilti HTR-M	16/0116	a	0.6	1.4
Hilti SDK-FV 8	07/0302	a	0.5	1.48
(T-Save) HTS-P	14/0400	a	0.6	1.6
(T-Save) HTS-M	14/0400	a	0.6	1.6
FM-ISOMAX	08/0094	a	0.7	1.9
Spit ISO	04/0076	a	1.0	0.5
SPIT PTH-KZ 60/8	18/1103	a	0.7	2.1
SPIT PTH-S	18/1102	a, b	0.9	2.6
SPIT PTH-X	18/1095	a	0.6	1.5
Spit PTH-EX	18/1095	a	0.6	1.4
Spit PTH-SX	18/1101	a, b	0.7	1.54

⁽¹⁾ a: surface mounting; b: countersunk mounting.

These characteristics, the use categories and the characteristic resistances in the substrate shall be taken from the corresponding anchor's ETA.

ETICS EDIL-Therm Minéral	ANNEX 2 of ETA-22/0553-version 1
Anchors for insulation product	

Glass fibre meshes:

- standard mesh: with mesh size between 3 and 6 mm;
- reinforced mesh: implemented in addition to the standard mesh, to improve the impact resistance.

Trade name	Mass per unit area (g/m ²)	Residual strength after ageing (N/mm)		Relative residual strength after ageing (%) ⁽¹⁾	
		Warp	Weft	Warp	Weft
Standard meshes					
SSA-1363 F+	167	≥ 20	≥ 20	≥ 50	≥ 50
R 131 A 101 C+	167	≥ 20	≥ 20	≥ 50	≥ 50
R 131 A 102 C+	161	≥ 20	≥ 20	≥ 50	≥ 50
03-1C+	160	≥ 20	≥ 20	≥ 50	≥ 50
ES-049/F	166	≥ 20	≥ 20	≥ 50	≥ 50
Reinforced mesh					
R 585 A 101	696	≥ 20	≥ 20	≥ 40	≥ 40

⁽¹⁾ Percentage of the strength in the as-delivered state.

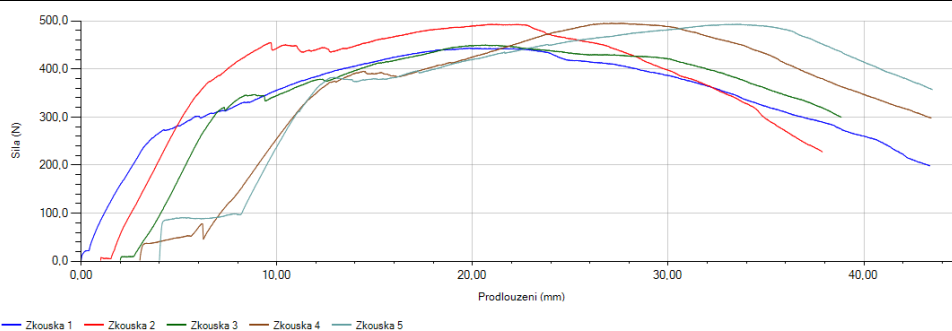
ETICS EDIL-Therm Minéral

Glass fibre meshes

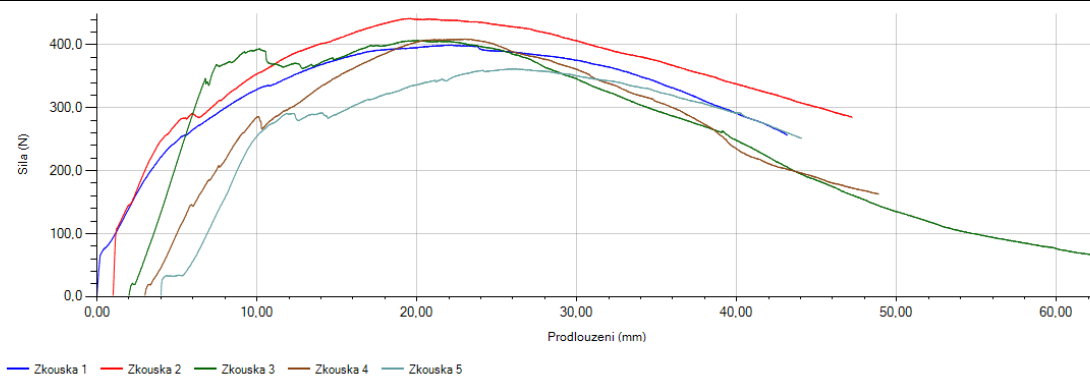
ANNEX 3

of ETA-22/0553-version 1

ECOROCK MONO (50 mm) – Initial state – out of the joint



ECOROCK MONO (50 mm) – Initial state – at the joint



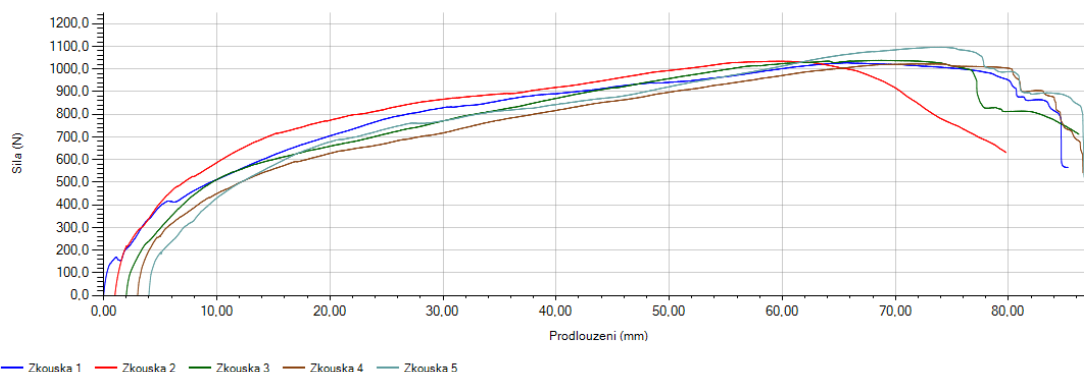
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

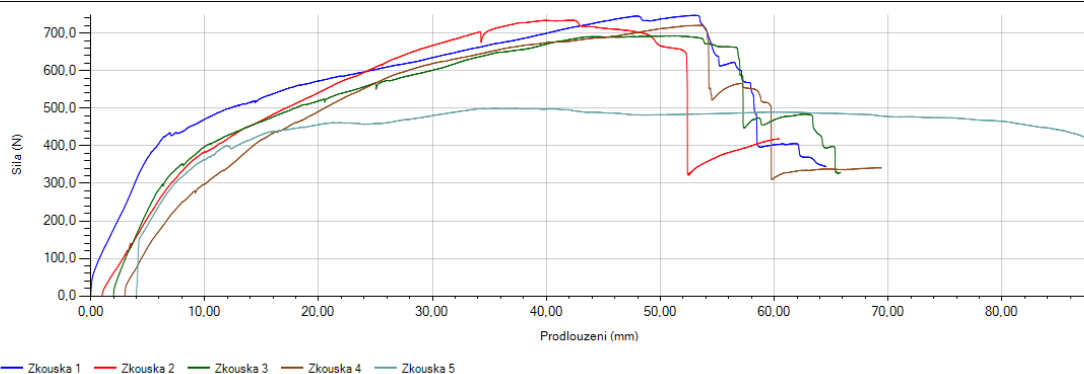
ANNEX 4 (1/12)

of ETA-22/0553-version 1

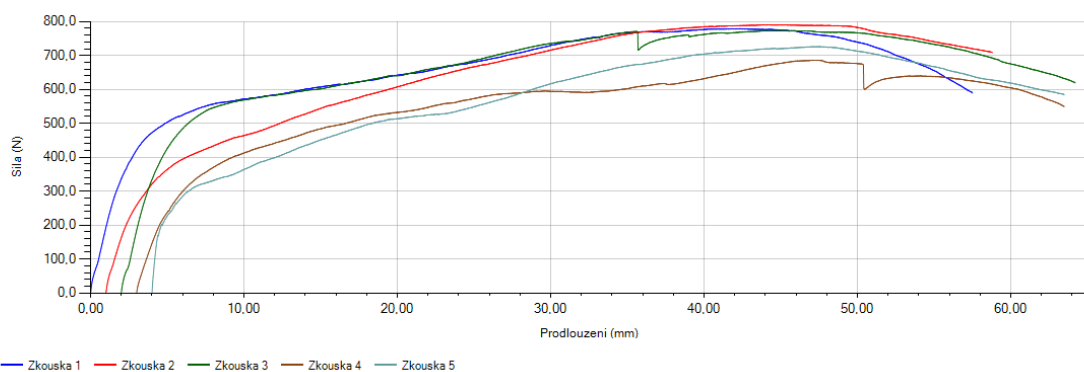
ECOROCK MONO (120 mm) – Initial state – out of the joint



ECOROCK MONO (120 mm) – Initial state – at the joint



ECOROCK MONO (100 mm) – Initial state – out of the joint (with Fischer Termoz SV II ecotwist)



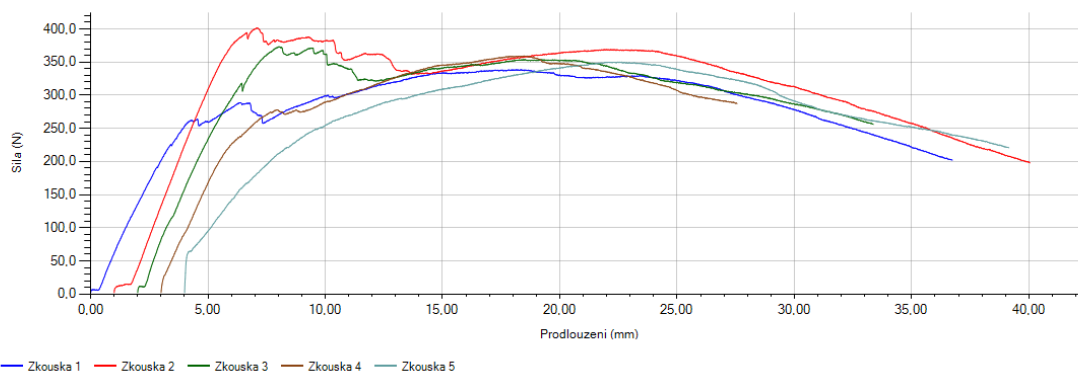
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

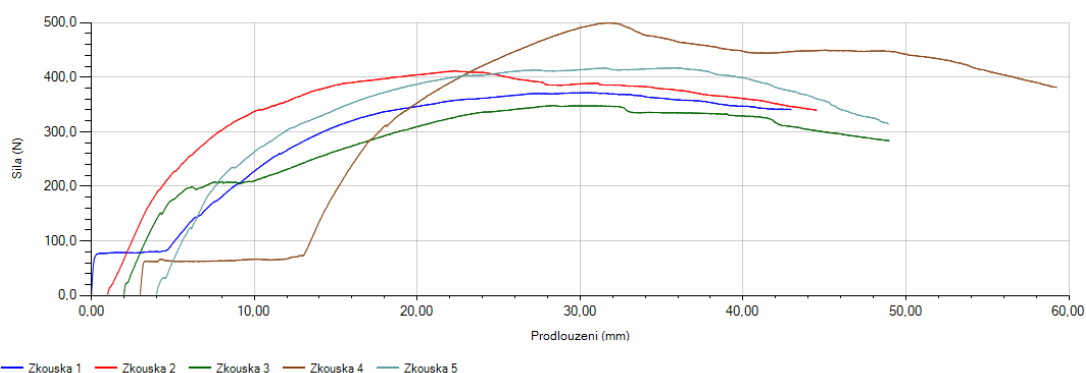
ANNEX 4 (2/12)

of ETA-22/0553-version 1

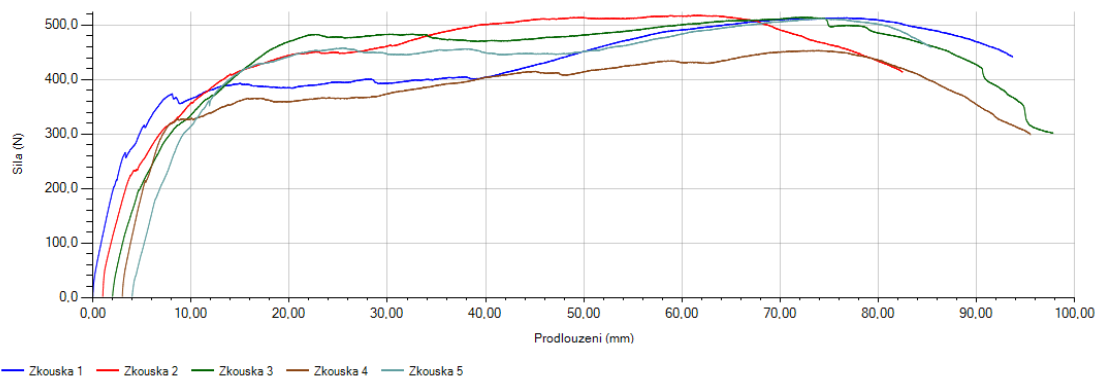
ECOROCK DUO (50 mm) – Initial state – out of the joint



ECOROCK DUO (80 mm) – Initial state – out of the joint



ECOROCK DUO (120 mm) – Initial state – out of the joint



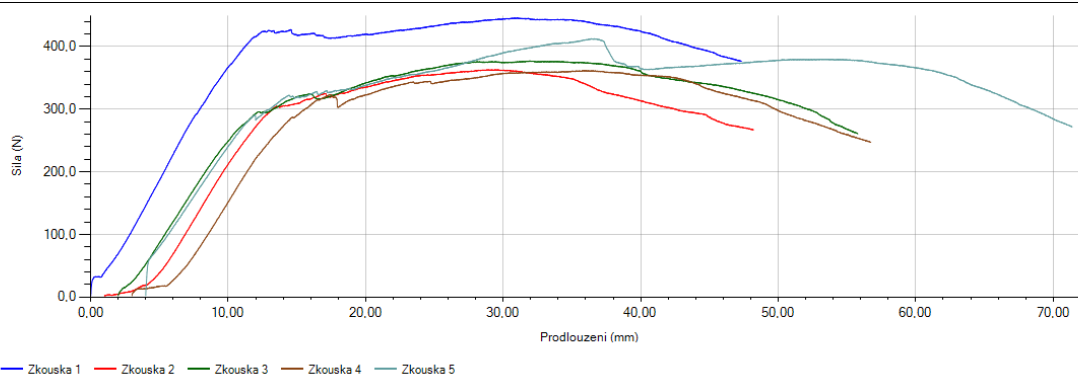
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

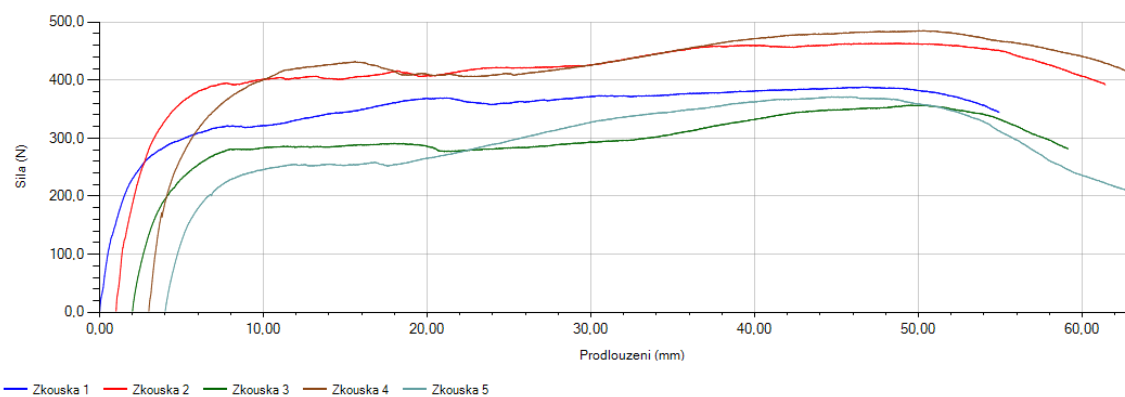
ANNEX 4 (3/12)

of ETA-22/0553-version 1

ECOROCK DUO (80 mm) – Initial state –at the joint



ECOROCK DUO (100 mm) – Initial state – out of the joint



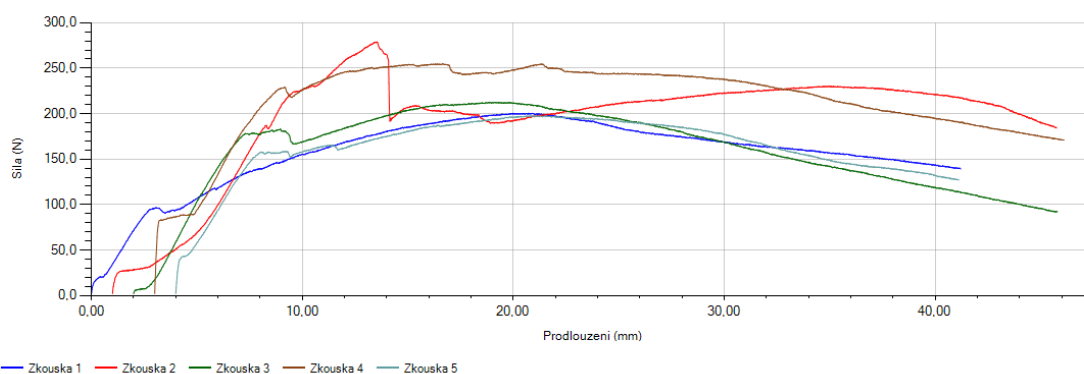
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

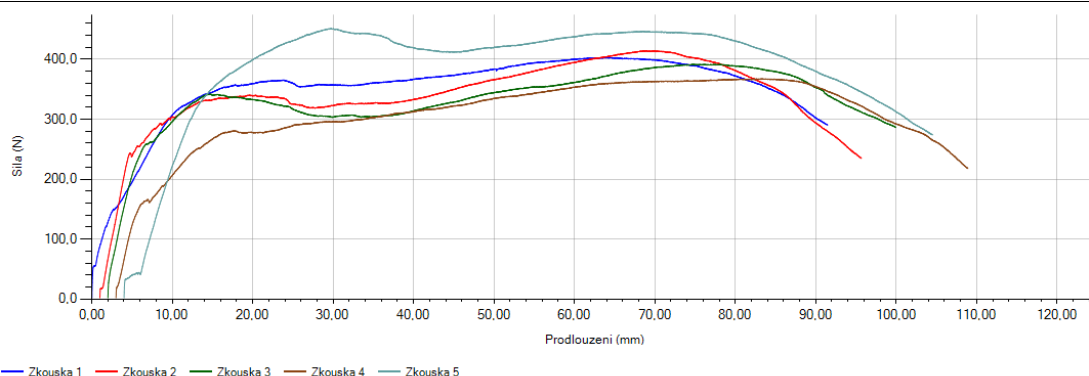
ANNEX 4 (4/12)

of ETA-22/0553-version 1

ECOROCK DUO (50 mm) – Ageing state –out of the joint



ECOROCK DUO (120 mm) – Ageing state – out of the joint



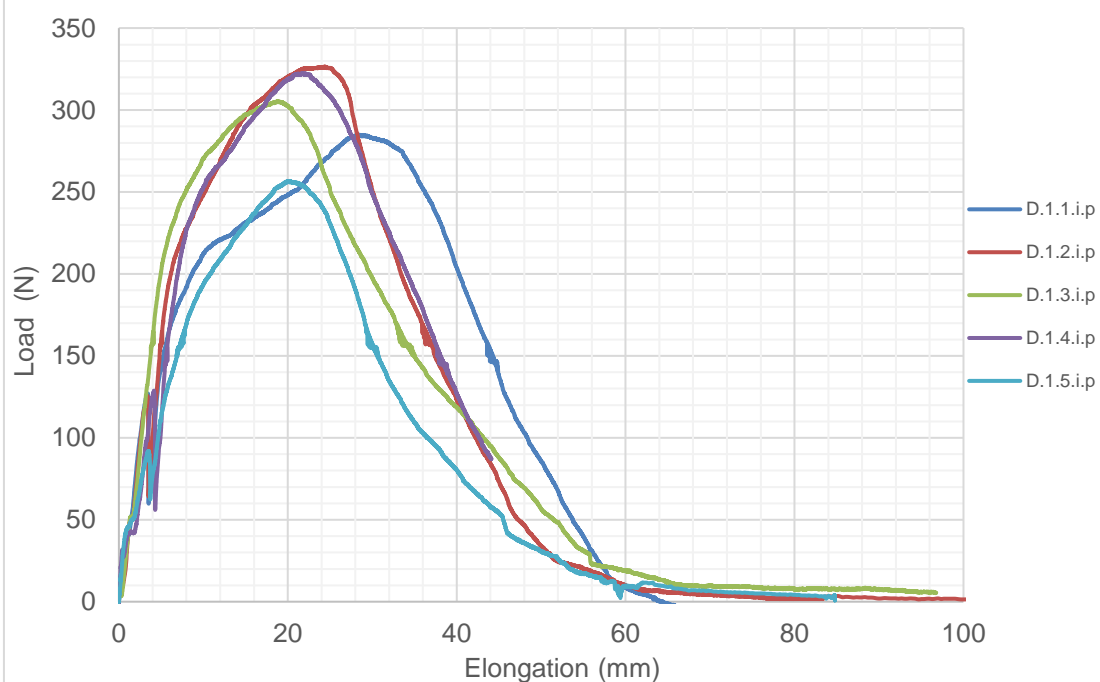
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

ANNEX 4 (5/12)

of ETA-22/0553-version 1

ISOVER TF 36 (50 mm) – Initial state –out of the joint (with Fischer Termoz SV II ecotwist)



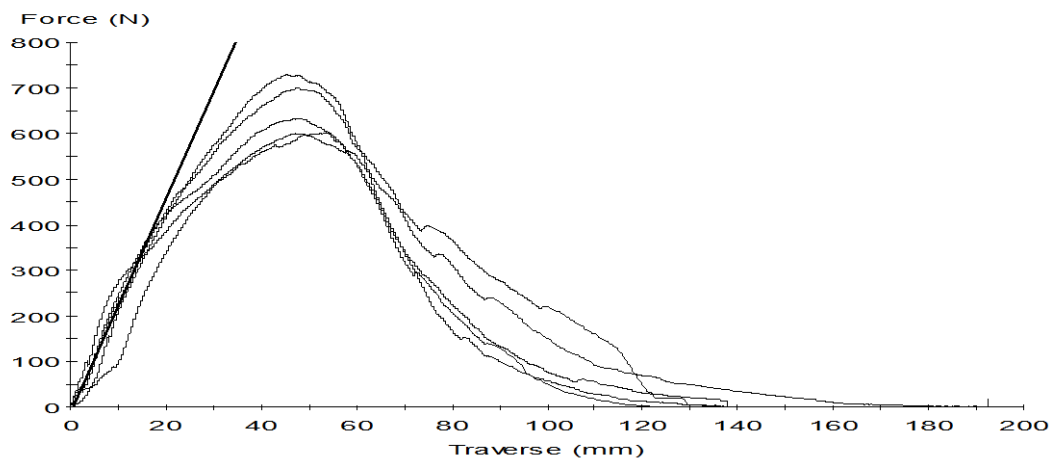
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

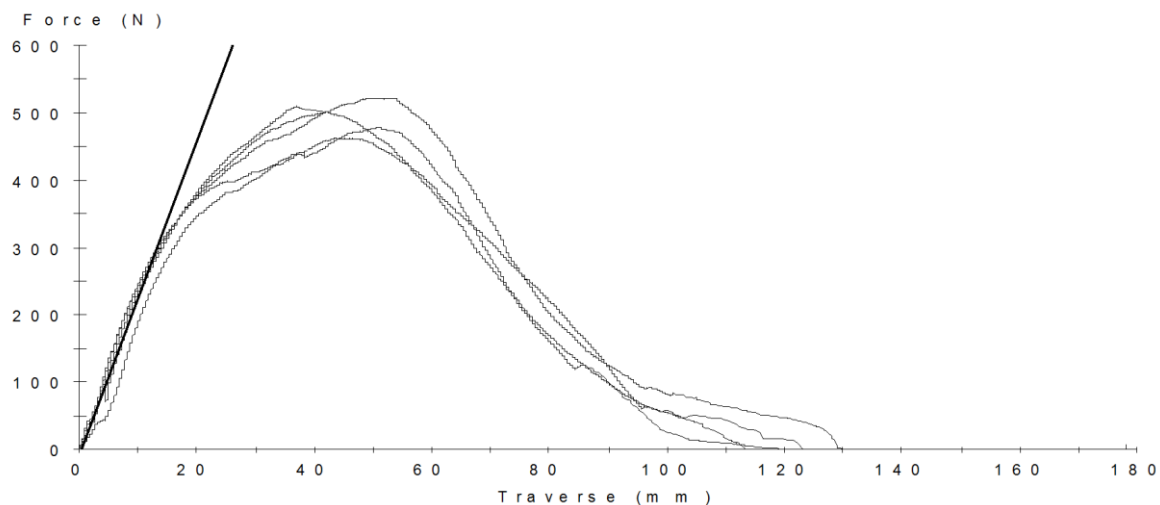
ANNEX 4 (6/12)

of ETA-22/0553-version 1

FKD-MAX C2 (80 mm) – Initial state –out of the joint
(with ejotherm NTK U 150)



FKD-MAX C2 (80 mm) – Initial state –at the joint
(with ejotherm NTK U 150)



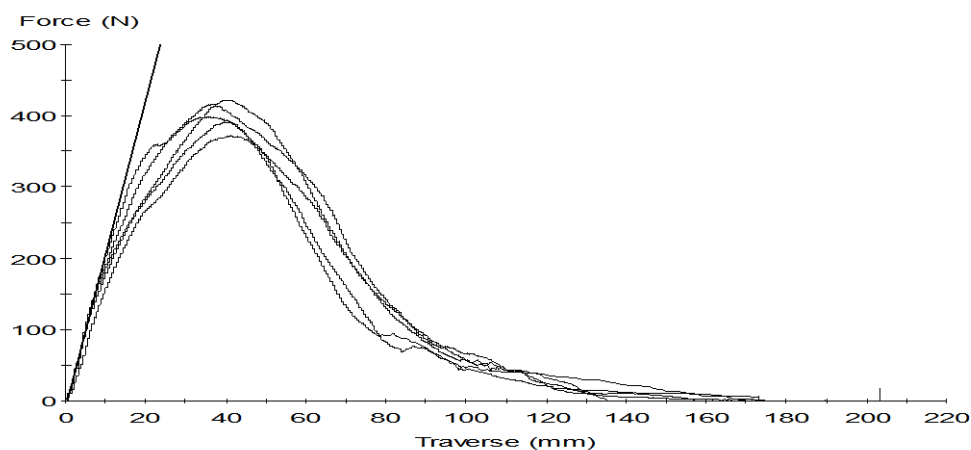
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

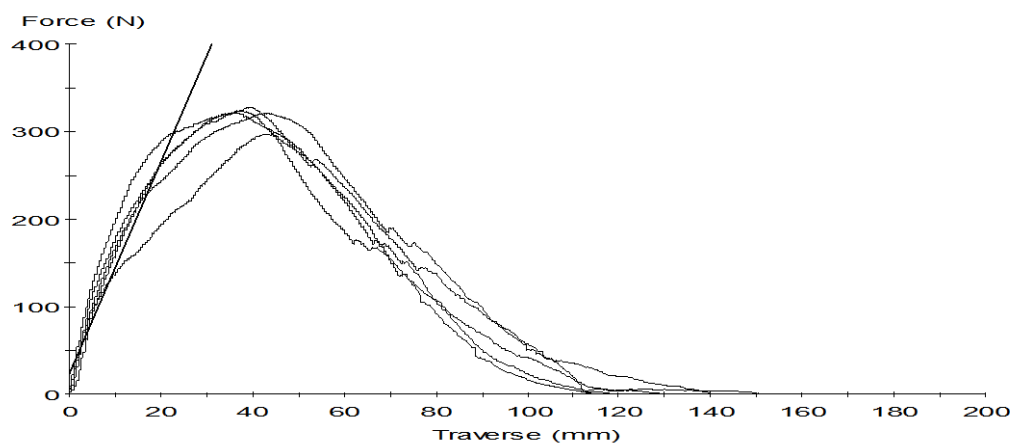
ANNEX 4 (7/12)

of ETA-22/0553-version 1

FKD-MAX C2 (80 mm) – Ageing state –out of the joint
(with ejotherm NTK U 150)



FKD-MAX C2 (80 mm) – Ageing state –at the joint
(with ejotherm NTK U 150)



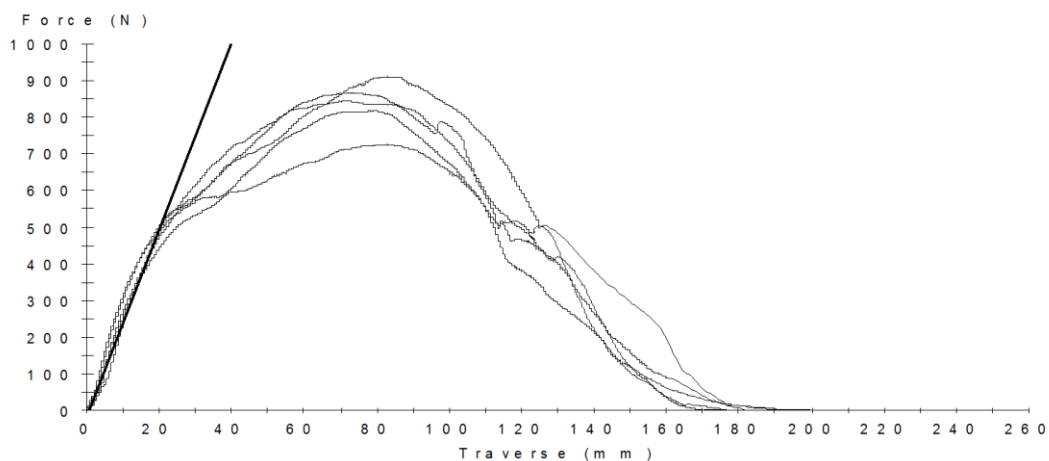
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

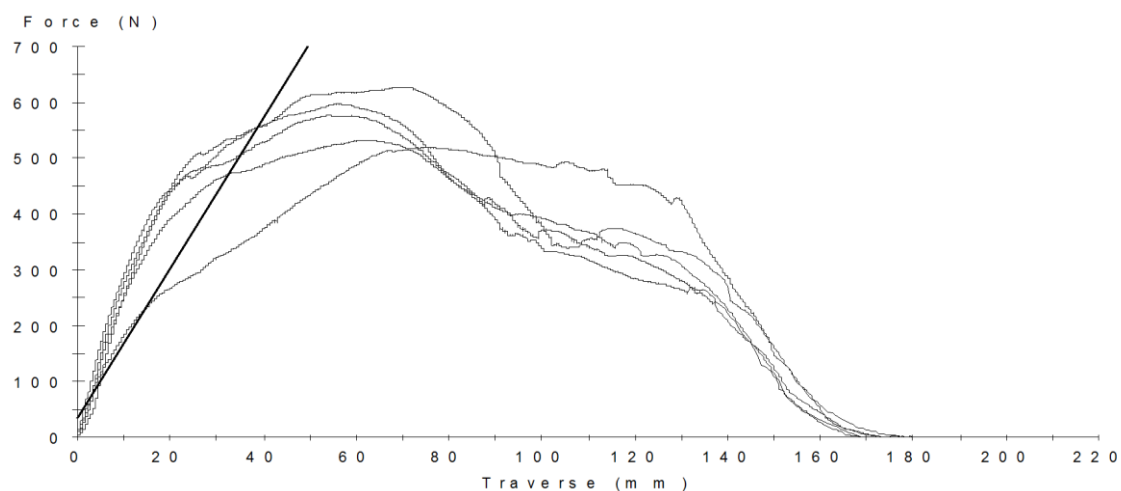
ANNEX 4 (8/12)

of ETA-22/0553-version 1

FKD-MAX C2 (140 mm) – Initial state –out of the joint
(with ejotherm NTK U 210)



FKD-MAX C2 (140 mm) – Initial state –at the joint
(with ejotherm NTK U 210)



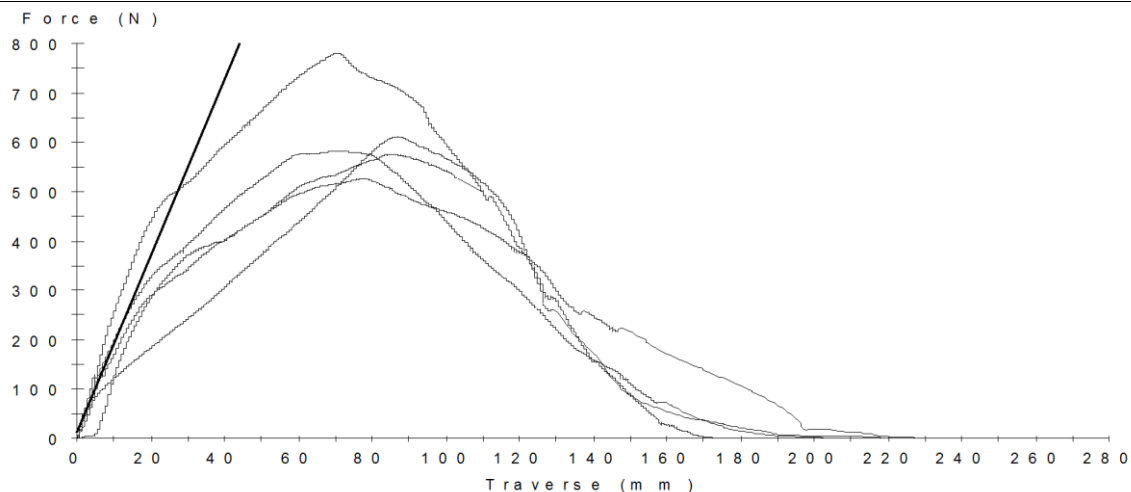
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

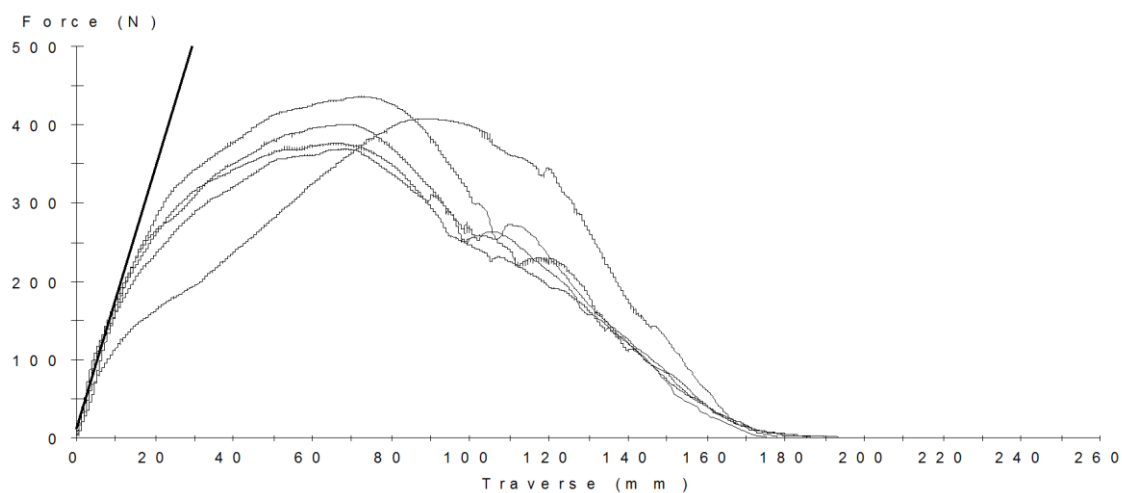
ANNEX 4 (9/12)

of ETA-22/0553-version 1

FKD-MAX C2 (140 mm) – Ageing state –out of the joint
(with ejotherm NTK U 210)



FKD-MAX C2 (140 mm) – Ageing state –at the joint
(with ejotherm NTK U 210)

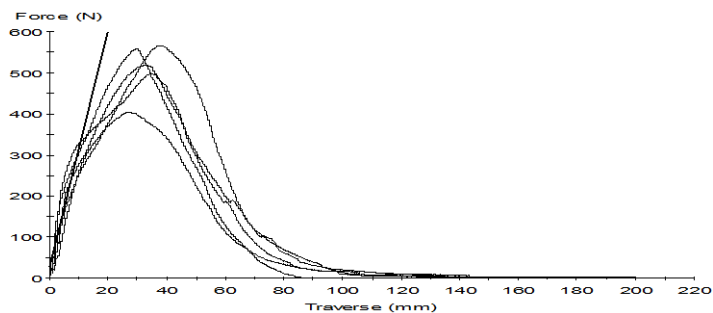


ETICS EDIL-Therm Minéral

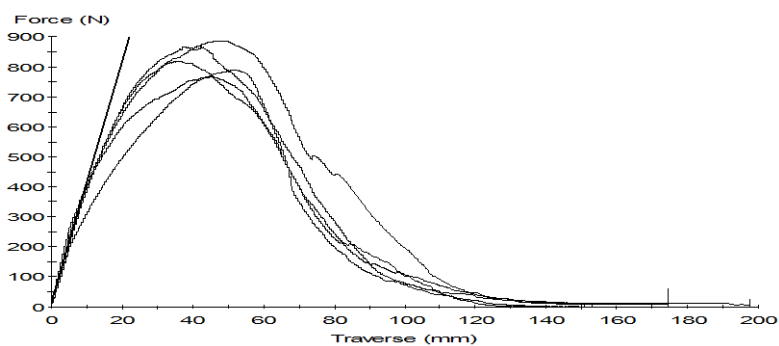
Pull-through tests – load/displacement graphs

ANNEX 4 (10/12)
of ETA-22/0553-version 1

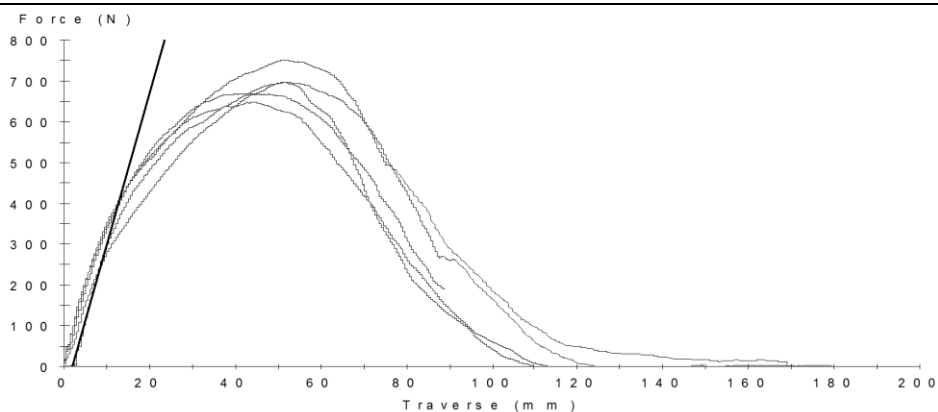
FKD-MAX C2 (100 mm) – Initial state –out of the joint
(with Fischer termoz SV II ecotwist)



FKD-MAX C2 (80 mm) – Initial state –out of the joint
(with STR U / STR U 2G + rosace VT 90)



FKD-MAX C2 (80 mm) – Initial state – at the joint
(with STR U / STR U 2G 150 + rosace VT 90)



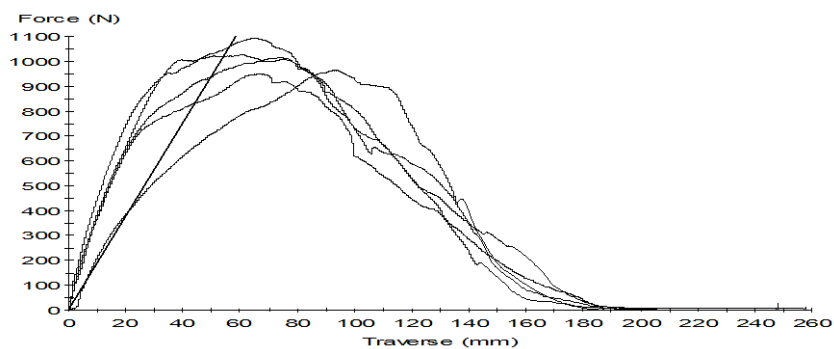
ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

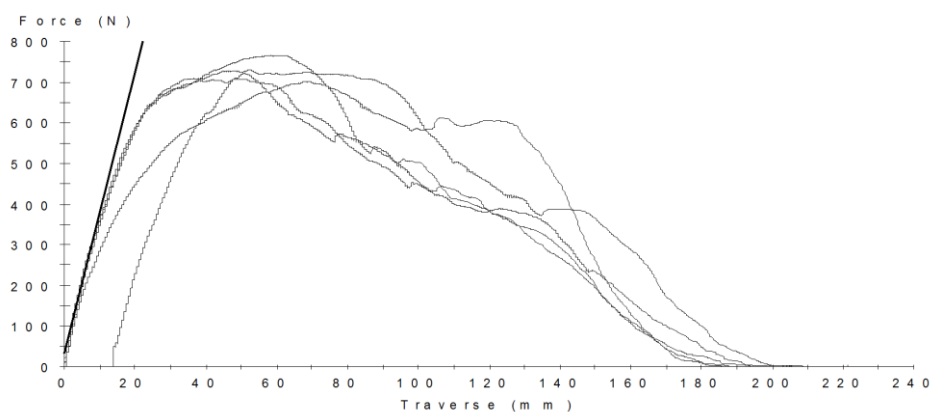
ANNEX 4 (11/12)

of ETA-22/0553-version 1

FKD-MAX C2 (140 mm) – Initial state –out of the joint (ejotherm STR U / STR U 2G 195+ rosace VT 90)



FKD-MAX C2 (140 mm) – Initial state –at the joint
(with ejotherm STR U /STR U 2G 195 + rosace VT 90)



ETICS EDIL-Therm Minéral

Pull-through tests – load/displacement graphs

ANNEX 4 (12/12)
of ETA-22/0553-version 1