



European Technical Assessment

ETA 13/0221
of 19.04.2018



General part

Technical Assessment Body issuing the ETA: ITeC

ITeC has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment).

Trade name of the construction product

Igniplaster®

Product family to which the construction product belongs

Rendering intended for fire resisting applications.

Manufacturer

PROMAT IBÉRICA SA
C/Velázquez 47, 6º izquierda
ES-28001 Madrid
Spain

Manufacturing plant(s)

According to Annex N kept by ITeC.

This European Technical Assessment contains

12 pages including 2 annexes which form an integral part of this assessment

and

Annex N, which 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) 305/2011, on the basis of

European Assessment Document EAD 350140-00-1106.

This version replaces

ETA 13/0221, issued on 24.04.2013

General comments

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may be made, with the written consent of issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

Specific parts of the European Technical Assessment

1 Technical description of the product

Igniplaster® is a wet-mix spray-applied fire protective rendering made of lightweight expanded perlite and vermiculite aggregates, additives and inorganic hydraulic binders included as part of the dry mix.

The rendering considered in this ETA does not require any additional product for its installation (ETA under option 1 as described in the scope of EAD 350140-00-1106).

Properties of the applied rendering such as thickness range, density, adhesion values, etc., are described in Annex 2.

2 Specification of the intended use(s) in accordance with the applicable EAD

Igniplaster® is intended for the fire protection uses as described in table 1, which also shows the related environmental use conditions.

Table 1: Intended use categories related to the protected element and the environmental conditions.

Fire protection uses		Environmental conditions
EAD 350140-00-1106 reference	Element intended to be protected	EAD 350140-00-1106 reference
Type 3	Loadbearing concrete elements	Type Z ₂

The environmental use categories are specified in EAD 350140-00-1106, section 1.2.3:

- Type Z₂: internal conditions with temperature of at least 0 °C and humidity lower than 85 % RH.

The provisions made in this ETA are based on a working life of Igniplaster® of at least 25 years, provided that the conditions laid down in the manufacturer's instructions for the installation, use and maintenance are met. These provisions are based upon the current state of the art and the available knowledge and experience.

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

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

3.1 Performance of the product

The assessment of the Igniplaster® was performed following EAD 350140-00-1106.

Table 2: Performance of Igniplaster®.

Product: Igniplaster®		Intended use: Fire resisting applications
Basic requirement	Essential characteristic	Performance
BWR 2 Safety in case of fire	Reaction to fire	A1
	Resistance to fire	See Annex 2
	Durability	Type Z ₂
BWR 4 Safety and accessibility in use	Adhesion (bond strength)	See 3.2.4 and Annex 2

The rest of characteristics included in EAD 350140-00-1106 have not been assessed in this ETA.

3.2 Methods used for the assessment

3.2.1 Reaction to fire

The rendering Igniplaster® has a reaction to fire classification A1 according to Decision 96/603/EC as amended.

3.2.2 Resistance to fire

Resistance to fire performance, classified in accordance with EN 13501-2¹, has been determined following the test and evaluation methods given in the annexes.

3.2.3 Durability

Durability of the rendering has been assessed according to EAD 350140-00-1106, section 2.2.12, in relation to its fire protective intended uses as defined in table 1.

3.2.4 Adhesion (bond strength)

Adhesion (bond strength) has been determined in accordance with EAD 350140-00-1106, section 2.2.7, and EGOLF EA 05². The adhesion of the rendering depends on the installed thickness and the preparation of the substrate. Bond strength guidance values of the rendering and the conditions under which they were achieved are given in Annex 2.

¹ EN 13501-2. Fire classification of construction products and building elements. Part 2: Classification using data from fire resistance tests, excluding ventilation services implemented.

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

According to the Decision 1999/454/EC of the European Commission, the system of AVCP (see EC Delegated Regulation (EU) No 568/2014 amending Annex V to Regulation (EU) 305/2011) given in the following table applies.

Table 3: AVCP System.

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Fire protective products	For fire compartmentation and/or fire protection or fire performance	Any	1

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

All the necessary technical details for the implementation of the AVCP system are laid down in the Control Plan deposited with the ITeC and agreed in accordance with EAD 350140-00-1106, section 3.

The Control Plan is a confidential part of the ETA and only handed over to the notified product certification body involved in the assessment and verification of constancy of performance.

The factory production control operated by the manufacturer shall be in accordance with the above-mentioned Control Plan.

Issued in Barcelona on 19 April 2018

by the Catalonia Institute of Construction Technology.



Ferran Bermejo Nualart
Technical Director, ITeC

² EGOLF EA 05 (SM5:1999): Fire testing. Method for the measurement of bonding properties of fire protection materials applied to steel, concrete and steel/concrete composite structures.

ANNEX 1. Resistance to fire performance and installation provisions

A.1.1 Overview of the assessed resistance to fire performance

The assessed constructive elements fire protected with Igniplaster® are shown in table A.1.1.

Table A.1.1: Fire protected constructive elements.

Intended use according to EAD		Test standard	Classification	Installation details
Type 3	Loadbearing concrete elements	EN 13381-3 ³	EN 13501-2	Annex 2

A.1.2 Installation provisions related to the elements protected with Igniplaster®

The installation should be carried out in accordance with the manufacturer's instructions and the provisions given in this ETA.

The product is intended for environmental use categories Type Z₂. Special provisions shall be taken for temporary protection of the rendering exposed to outdoor conditions during construction.

Before application the substrate should be inspected and prepared. Surfaces to be sprayed shall be free from oil, grease, primers, sealing agents or of any other substance that will impair adhesion. If dirt is detected on the substrate, it is recommended to clean the substrate by spraying water with a hose.

Clips, hangers, supports, sleeves and other attachments to the substrate can be placed by others prior or after the application of Igniplaster®. Ducts, piping, conduits or other suspended equipment can be installed after the application of Igniplaster®, in which case later inspection will be required and, when necessary, reparation of the rendering.

A.1.3 Verifications on site

The thickness should be measured at sufficient points to determine the mean and minimum thickness. A suitable method for thickness measurement is given in EAD 350140-00-1106, section 2.3.4.

The density of the hardened rendering should be measured within the tolerances specified in the next annex.

The bond strength of the rendering to the substrate should be tested on site. A suitable method is EGOLF Agreement EA 05, which can be used as a base for the site tests. The person responsible for the works will decide on the adequacy of the site tests results taking into account the reference values given in the next annex. For their acceptability, the recommendations given in EAD, section G.4, or other existing criteria can be applied, under the responsibility of the person responsible for works.

³ EN 13381-3. Test methods for determining the contribution to the fire resistance of structural members. Part 3: Applied protection to concrete members.

ANNEX 2. Specification and assessment of fire protection of loadbearing concrete slabs and walls protected by Igniplaster® (intended use Type 3)

A.2.1 Classification

The constructive elements described in this annex have been tested and assessed according to EN 13381-3 and classified in accordance with EN 13501-2.

The equivalent thickness of concrete and the insulation performance are given in section A.2.3.

A.2.2 Installation requirements

The system installation should be carried out in accordance with the provisions in A.1.2 and the following specification.

A.2.2.1 Supporting structural element

Igniplaster® can be applied on concrete slabs exposed to fire from one side, both in horizontal (floors) and vertical (walls) orientation. Specification of the supporting structural element is given in table A.2.1.

Table A.2.1: Specification of the concrete structural element.

Element	Characteristics	Mounting and fixing
Load bearing concrete slab or wall	Thickness of the slab/wall ≥ 120 mm Density: $2330 \text{ kg/m}^3 \pm 15 \%$ Compressive strength $\geq 30 \text{ N/mm}^2$ Made with any type of aggregate	Reinforced concrete. Concrete released from the mould without agent. Surface free of oil, grease, dust, etc.

A.2.2.2 Fire protective rendering

Igniplaster® is directly applied on the concrete structure in one coat of regular thickness to reach the requested thickness according to this annex. Hairline cracks in the dry rendering are not accepted.

Specification of the fire protective rendering is given in table A.2.2.

Table A.2.2. Specification of the applied rendering.

Product	Characteristics	Mounting and fixing
Igniplaster® (Hardened rendering)	Thickness: 8,9 mm to 18,8 mm Density: $821 \text{ kg/m}^3 \pm 15 \%$	Rendering is kept without finishing after application. Spray-applied rendering without: <ul style="list-style-type: none"> - Primer or bonding agent - Topcoat or sealing coat - Mechanical fixings or reinforcement - Additives out of dry mix

A.2.2.3 Bonding properties of Igniplaster® on concrete slabs and walls

Assessment of the bonding properties of Igniplaster®, when directly applied on concrete structures, has been carried out according to EGOLF EA 05 procedure.

The indicated values are representative of adhesive/cohesive failure at the substrate surface or within the sprayed thickness of Igniplaster®. These values are guidance values, and they do not reflect a statistical evaluation, nor minimum guaranteed values.

Table A.2.3. Tensile bond strength on concrete substrates.

Surface	Thickness of Igniplaster® (mm)	Mean tensile bond strength (MPa)	Failure mode
Concrete substrate according EGOLF EA 05	8,9	0,12	Adhesive/cohesive failure
	18,8	0,15	Adhesive/cohesive failure

A.2.3 Assessment of the fire performance of Igniplaster® on concrete slabs and walls

A.2.3.1 General

The assessment method used to assess the fire protection performance of Igniplaster® when applied on concrete elements is according to paragraph 13 of EN 13381-3.

A.2.3.2 Insulation performance

Insulation criteria were maintained for the 8,9 mm protected concrete slab over the entire test duration (183 minutes).

The maximum temperature of the 18,8 mm protected concrete slab unexposed side exceeded 180°C the initial temperature at minute 234.

A.2.3.3 Stickability performance

The stickability of Igniplaster® when applied on concrete slabs and walls is determined according to the requirements of paragraph 13.5 of EN 13381-3.

A.2.3.3.1 Stickability criteria for slab with Igniplaster® 8,9 mm

At no time the maximum recorded temperatures of the concrete exposed surface were more than 50% above the mean value of the recorded temperatures of the concrete exposed surface (no stickability failure occurs).

A.2.3.3.2 Stickability criteria for slab with Igniplaster® 18,8 mm

Between the 96th and the 276th minute the maximum recorded temperature of the concrete exposed surface was more than 50% above the mean value of the recorded temperature of the concrete exposed surface (a significant detachment was observed after the test).

A.2.3.4 Protection of concrete slabs and walls

The insulation efficiency of the 8,9 mm and 18,8 mm thicknesses protective material when applied on concrete slabs and walls as specified in table A.2.1, subject to the thermal exposure under the standard time-temperature curve as defined in clause 5.1.1 of EN 1363-1, is given in the next tables in a range of concrete temperatures within 350 °C – 650 °C.

Table A.2.4: Depth of concrete for a protection thickness of 8,9 mm according to the concrete temperature.

Duration of exposure (min)	350 °C	400 °C	450 °C	500 °C	550 °C	600 °C	650 °C
	Depth (mm)						
60	8	5	2	--	--	--	--
90	15	12	9	6	2	--	--
120	26	20	14	11	8	5	3
150	38	30	25	18	14	11	7
180	48	41	35	29	23	17	13

Table A.2.5: Depth of concrete for a protection thickness of 18,8 mm according to the concrete temperature.

Duration of exposure (min)	350 °C	400 °C	450 °C	500 °C	550 °C	600 °C	650 °C
	Depth (mm)						
90	1	--	--	--	--	--	--
120	6	3	--	--	--	--	--
150	11	8	5	2	--	--	--
180	16	13	10	8	5	2	--
210	36	24	14	12	9	7	4
240	47	38	29	18	13	10	8

A.2.3.5 Equivalent thickness of concrete

The equivalent thickness of concrete induced by the protective rendering Igniplaster® is determined according to Annex C of EN 13381-3 and given in table A.2.6.

Table A.2.6: Equivalent thickness of concrete (mm).

Component	Thickness of Igniplaster® (mm)	Duration (min)					
		30	60	90	120	180	240
Load bearing concrete slab or wall	8,9	28	31	30	28	20	--
	18,8	40	53	60	63	57	42

The equivalent thickness of concrete H_{eq} in function of the thickness of Igniplaster® is given in figures A.2.1, A.2.2, A.2.3, A.2.4 and A.2.5 for a time period of 30, 60, 90, 120 and 180 minutes respectively.

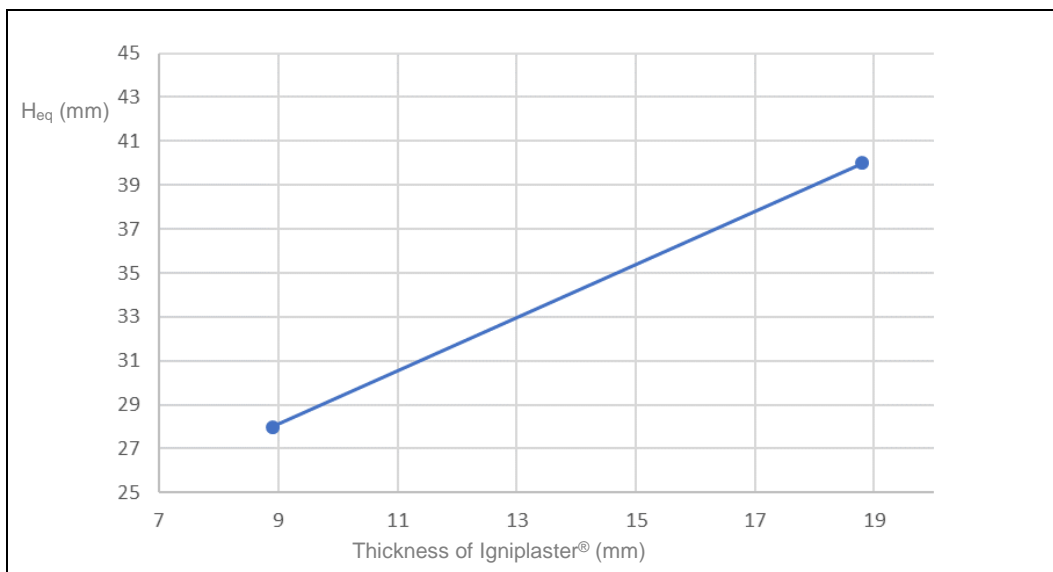


Figure A.2.1: Equivalent thickness of concrete (30 minutes).

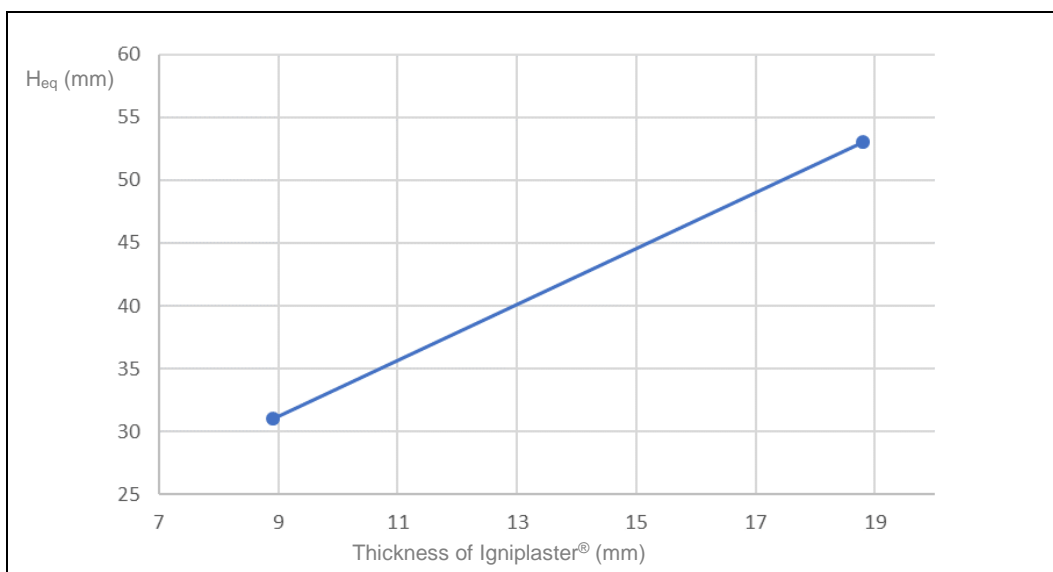


Figure A.2.2: Equivalent thickness of concrete (60 minutes).

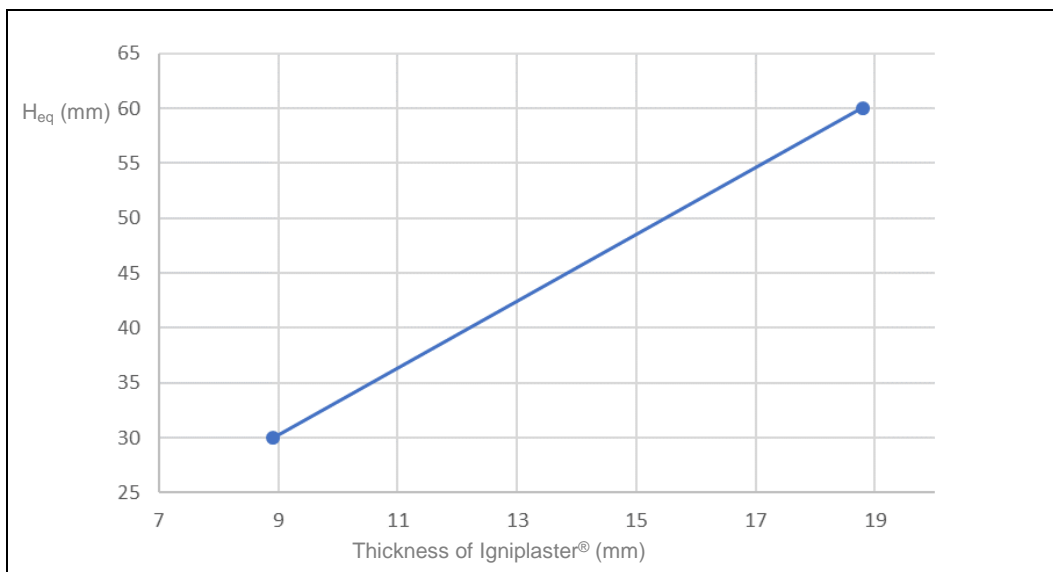


Figure A.2.3: Equivalent thickness of concrete (90 minutes).

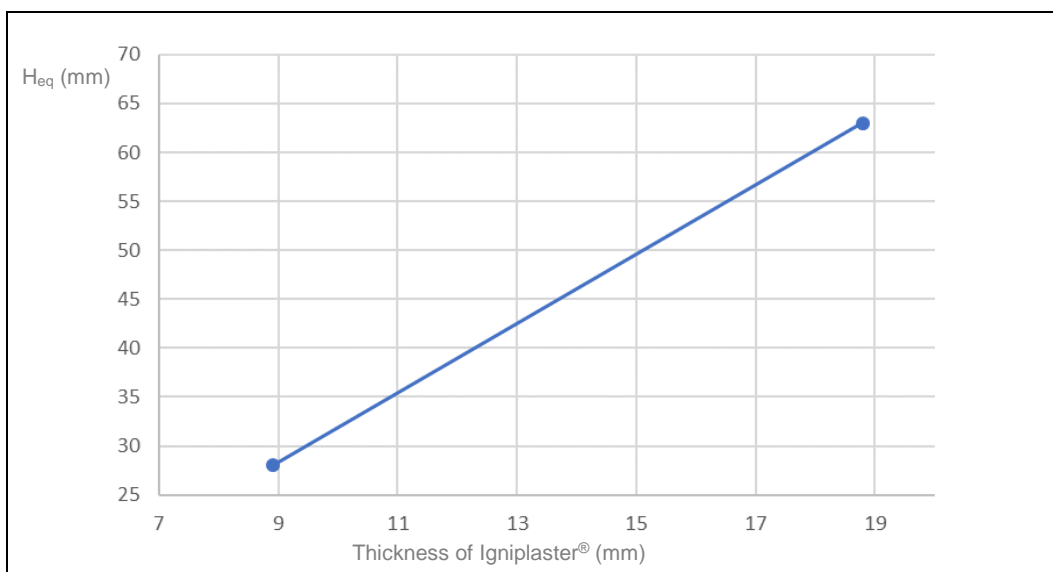


Figure A.2.4: Equivalent thickness of concrete (120 minutes).

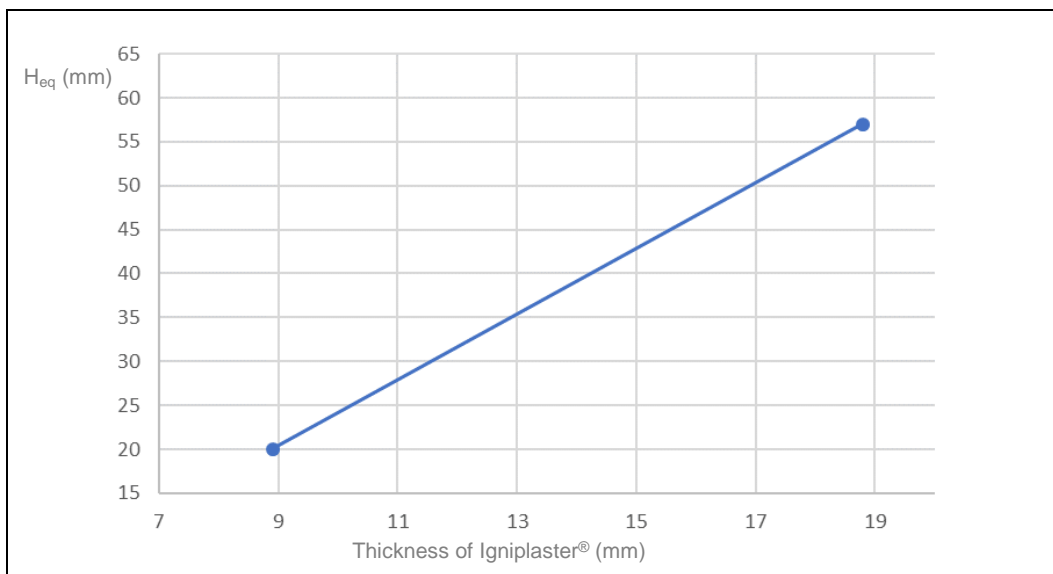


Figure A.2.5: Equivalent thickness of concrete (180 minutes).