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European Technical Assessment

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I General Part

Technical Assessment Body issuing the ETA: Technical and Test Institute for Construction Prague

Trade name of the construction product:	**AITHON AL20X**
Product family to which the construction product belongs:	Product are code: 35 Fire retardant products
Manufacturer:	Aithon Ricerche International srl via Mazzini 68 21020 Ternate (VA), Italy
Manufacturing plant(s):	Plant No. 2
This European Technical Assessment contains:	8 pages
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of:	ETAG 028, edition 2012, used as European Assessment Document (EAD)

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II Specific part

1. Technical description of the product

1.1 General

AITHON AL20X is a white intumescent painting system consisting of the white water born, intumescent base coat **AITHON AL20X** that can be used with or without the water born top coat **AITHON F4X**.

The system **AITHON AL20X** is used as a fire retardant product, intended for application on timber, applied in situ. According to ETAG 028 and its defined area of fire tests, the intended use of the construction product is following: construction products excluding floorings.

The fire retardant system consisting of the intumescent base coat **AITHON AL20X without top coat** is intended for use for internal and semi-exposed conditions, the use category according to ETAG 028: **Type Y**.

The fire retardant system consisting of two components **AITHON AL20X** and **AITHON F4X** is intended for use in all conditions (internal, semi-exposed and exposed), the use category according to ETAG 028: **Type X**.

Table No. 1: Components of the fire retardant system - use categories according ETAG 028

Use category according ETAG 028: Y	
Base coat: **AITHON AL20X** (water-based intumescent mono-component; white colour)	**Top coat:** -
Use category according ETAG 028: X	
Base coat: **AITHON AL20X** (water-based intumescent mono-component; white colour)	**Top coat:** **AITHON F4X** (water-based mono-component; white colour)

Both AITHON AL20X and AITHON F4X can be applied by brush, roller or a spray gun. The products are both ready to use; dilution with water is possible (maximum 5%).

AITHON AL20X (system) should be applied when ambient temperature is between 5°C and 30°C. It is important that the temperature remains above 5°C all along the drying process. Ambient humidity should not exceed 70%. Above that value the application is possible, but drying time is affected. The timber humidity content at the time of application should be below 12%.

The timber surface shall be free from dust, wax, oil, or other water-repellent products which may affect the AITHON AL20X base coat adhesion. At least the entire surface needs a mild sandblasting using a 150 or 180 grade sand paper, if timber is already treated.

Table No. 2: The required quantity of the system is the following:

Component – system AITHON AL20X without top coat	**g/m²**	**No. of coats (indicative)**
AITHON AL20X	250	1
Component – system AITHON AL20X with top coat AITHON F4X	**g/m²**	**No. of coats (indicative)**
AITHON AL20X	350 total (if two coats: 175 each)	2
AITHON F4X	120 total (if two coats: 60 each)	2

Only one coat per day of AITHON AL20X or AITHON F4X should by applied .

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

AITHON AL20X is used as a fire retardant system for application on timber to improve the reaction to fire performance characteristics of a surface of a construction product when incorporated into the works.

Regarding the environmental conditions, the reactive coating system is intended for the following uses:

- **AITHON AL20X** without top coat as defined in Table No. 1 and Table No. 2: use category type Y, type Z1 and type Z2;

- **AITHON AL20X** with top coat **AITHON F4X** as defined in Table No. 1 and Table No. 2: use category type X, type Y, type Z1 and type Z2;

The end use categories are specified in ETAG 028, Clause 1.2:

- **Type X:** Fire retardant products intended for all conditions (internal, semi-exposed and exposed),
- **Type Y:** Fire retardant products intended for internal and semi-exposed conditions. Semi-exposed includes temperatures below zero, but no exposure to rain and limited exposure to UV (but UV is not assessed),
- **Type Z1:** Fire retardant products intended for internal conditions (excluding temperatures below zero) with high humidity[1],
- **Type Z2:** Fire retardant products intended for internal conditions (excluding temperatures below zero) with high humidity classes other than Z1.

Note: With regards to the definition of the use categories, basic requirement for construction work BWR 3 (Hygiene, health and environment - Release of dangerous substances) could be applicable differently in Member States (different national Member State's requirements).

The provisions made in this ETA are based on an assumed working life of the fire retardant system **AITHON AL20X** for fire protection of at least 5 years, provided that the conditions laid down in the manufacturer's instruction for the installation, use and maintenance are met. These provisions are based upon the current state of the art and available knowledge and experience.

After the assumed working life of the product, i.e. 5 years, the manufacturer should be consulted about any maintenance and repair of the fire retardant product.

The indications given as to the working life of the construction product cannot be interpreted as guarantee, but are regarded only as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

[1] These conditions apply for internal humidity class 5 in accordance with EN ISO 13788: Hygrothermal performance of building components and building elements - Internal surface temperature to avoid critical surface humidity and interstitial condensation - Calculation methods

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

The assessment of **AITHON AL20X** for the intended use considering the basic requirements for construction works BWR 2, BWR 3 and durability and identification was performed following the *ETAG 028* for *Fire retardant products (June 2012)*, used as EAD.

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

The performance of the reactive coating **AITHON AL20X** without top coat has been determined according to EN 13501-1[2]:

B – s1, d0

for the combination given in Table No. 1.

The performance of the reactive coating system **AITHON AL20X + AITHON F4X** has been determined according to EN 13501-1:

B – s2, d0

for the combination given in Table No. 1.

The classification **B – s1, d0** for **AITHON AL20X without top coat** is valid for final use under the following conditions:

- substrate: wood with density equal or more than 390 kg/m^3; minimum thickness 10 mm
- fire retardant system: 250 g/m^2 of AITHON AL20X; white colour
- air gap behind: non-ventilated air gap of max. 40 mm or without air gap

The classification **B – s2, d0** for **AITHON AL20X + AITHON F4X** is valid for final use under the following conditions:

- substrate: wood with density equal or more than 390 kg/m^3; minimum thickness 10 mm
- fire retardant system: 470 g/m^2 (350 g/m^2 AITHON AL20X + 120 g/m^2 AITHON F4X), white colour
- air gap behind: non-ventilated air gap of max. 40 mm or without air gap

[2] EN 13501-1:2007 + A1:2009 Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests

3.2 Hygiene, health and environment (BWR 3)

3.2.1 Release of dangerous substances

No performance assessed.

3.3 Durability

The verification was made in accordance with 2.4.3 and Annex B of ETAG 028. Durability of the reaction to fire performance was assessed by subjecting test specimens to fire tests in accordance with ISO 5660-1[3], then further specimens were subjected to ageing procedures then fire tested again to ISO 5660-1.

After undergoing the ageing tests the averaged fire performance of the test specimens did not deviate by more than the criteria provided in Table 2a of ETAG 028 from the averaged fire performance of those specimens which had not been subjected to ageing procedures.

Durability of the reaction to fire performance was assessed separately for **AITHON AL20X** without top coat – see Table No. 3 and for **AITHON AL20X** + **AITHON F4X** – see Table No. 4.

Table No.3: Fire performance in durability **AITHON AL20X** without top coat

	Building products excluding floorings requirements from ETAG 028, Table 2a	Assessment
Heat flux	50 kW/m^2	50 kW/m^2
Criteria	End use category **Type Y**	**Type Y**
Rate of heat release	Class B products: $RHR_{30s\ ave} \leq$ 150 kW/m^2 during 600s after ignition and THR_{600s} increase < 20 % compared to testing before the exposure	$RHR_{30s\ ave}$ = **10 kW/m^2** (≤ 150 kW/m^2) and THR_{600s} increase = **0 %** (< 20 %)

The **AITHON AL20X without top coat** has been assessed as having passed the requirements for the end use category **Type Y** (Fire retardant products intended for internal and semi-exposed conditions defined in ETAG 028.

Note: Products that meet the requirements for type Y, also meet the requirements for type Z1 and Z2.

[3] ISO 5660-1:2015 Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)

Table No.4: Fire performance in durability **AITHON AL20X** with top coat **AITHON F4X**

	Building products excluding floorings requirements from ETAG 028, Table 2a	Assessment
Heat flux	50 kW/m^2	50 kW/m^2
Criteria	End use category **Type X**	**Type X**
Rate of heat release	Class B products: $RHR_{30s\ ave} \leq 150$ kW/m^2 during 600s after ignition and THR_{600s} increase < 20 % compared to testing before the exposure	$RHR_{30s\ ave}$ = **8 kW/m^2** (≤ 150 kW/m^2) and THR_{600s} increase = **6 %** (< 20 %)

The **AITHON AL20X with top coat F4X** has been assessed as having passed the requirements for the end use category **Type X** (Fire retardant products intended for all conditions (internal, semi-exposed and exposed)) defined in ETAG 028.

Note: Products that meet the requirements for type X meet the requirements for all other types (it means also type Y, type Z1 and type Z2).

3.3.1 Identification

This ETA is issued for the system on the basis of agreed data/information, held on file by TZUS Prague, branch Brno, which identifies the system components that have been assessed and judged. Identification tests according to Clause 5.2.3 of ETAG 028 have been carried out on both components of the system.

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

According to the European Commission decision 99/454/EC, the **AVCP system 1 or 3** (further described in Annex V to Regulation (EU) No 305/2011) applies:

Product(s)	Intended use(s)	Level(s) or class(es) (resistance to fire)	System(s)
Fire protective products (including coatings)	For uses subject to reaction to fire requirements	A1*, A2*, B*, C* A1**, A2**, B**, C**, D, E	1 3
* 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) ** Products/materials not covered by footnote (*)			

The attestation of fire retardant products which may attain a classification in accordance with EN 13501-1 of Class A1, A2, B or C, shall be in accordance with system 1 since there is a clearly identifiable stage in their production which results in an improvement of fire performance due to the introduction of fire retardants of differing natures.

Note: Fire retardant products will not have a Class F reaction to fire performance, nor can they be CWFT (Classified Without Further Testing) products.

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

The manufacturer and the Technical and Test Institute for Construction Prague have agreed a Control Plan which is deposited with the Technical and Test Institute for Construction Prague in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product including the exact test method and threshold. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

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