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European Technical Assessment

ETA 10/0051 of 16/12/2018

English translation prepared by CSTB - Original version in French language

General Part

Nom commercial *Trade name*	**STARFLEX PRO**
Famille de produit *Product family*	Produit composé de faces réfléchissantes utilisé dans des procédés d'isolation thermique de l'enveloppe d'un bâtiment. **Product composed of reflective faces used in thermal insulation processes of a building envelope.**
Titulaire *Manufacturer*	**CHANTRAINE COMMERCIALE sàrl** **30 GRUUSS STROOSS** **L-9991 WEISWAMPACH** **LUXEMBOURG**
Usine de fabrication *Manufacturing plant*	**1- PROXITAL S.p.A.** **Via Magnadola, 73,** **I-31045 Motta di Livenza TV, Italie** **2- JIFFY Packaging Belgium** **Bodemstraat 1** **B-3830 WELLEN**
Cette evaluation contient : *This Assessment contains*	5 pages incluant 0 annexes qui font partie intégrante de cette évaluation 5 *pages including 0 annexes which form an integral part of this assessment*
Base de l'ETE *Basis of ETA*	Document d'Evaluation Européen (DEE) (EAD-040007-00-1201) *European Technical Assessment* (EAD) (EAD-040007-00-1201)
Cette evaluation remplace : *This Assessment replaces*	*ETA 10/0051 of 19/02/2010*

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SPECIFIC PART

1. Technical: definition of the product and intended use

This European Technical Approval applies to the following reflective product:

STARFLEX PRO.

The reflective product is composed of 5 layers: aluminium foil (12μm) + non-crosslinked closed cell polypropylene sheets (30μm) + non-woven polypropylene + non-crosslinked closed cell polypropylene sheets (30μm) + aluminium foil (12μm).

The product is presented in the form of roller with following dimensions:

- Thickness : 8 mm,
- Width : 1.2 m,
- Length : 30 m.

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

Reflective product STARFLEX PRO is intended to be used in constructive system as an additional thermal insulation. It contributes to an increase in the thermal resistance of a thermal system in the following areas of application:

Application for walls

- Vertical walls in timber frame constructions,
- Vertical masonry walls with fixation of product on timber frame constructions or similar structures,

Application for roofs

- Inclined roof,
- Ceilings under attics under joists or timbers.

Application for ceilings / floors

- Low-floor constructions
- Intermediate ceilings.

The product is always applied on the warm side of a construction in order to avoid any condensation risk, with an additional thermal insulation product.

The thermal insulation product shall only be installed in structures where it is protected from rain, weathering and moisture.

The product is installed stretched, for example fastened on rafters, cleats or battens, by leaving possibly on both sides of the product one or two air spaces. In the absence of both possible air spaces having thermal resistance determined according to §4.2.1, the thermal resistance of the product once installed is equal to the intrinsic thermal resistance given in § .2.5.

The design value of the thermal conductivity shall be laid down according to relevant national provisions.

This European Technical Approval does not cover the complete or finished system of insulation. As for the application of all products insulating, the national codes of practice and regulations must be respected for design and implementation of construction systems.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the thermal insulation products of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works

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

The identification tests and the assessment for the intended use of this product according to the Essential Requirements were carried out in compliance with the European Assessment Document (EAD) Nº 040007-00-1201 for "Thermal insulation products for buildings with radiant heat reflective components", November 2015).

Statement of dangerous substances:

According to the manufacturer's declaration taking account of EOTA TR 034, the product installed does not contain and release any dangerous substance.

3.1. Dimensions

Length and width

Length and width are determined according to EN 822.

The nominal length and width are:

- Length : 30 m ± 1%,
- Width : 1.2 m ± 1 %.

Thickness

The thickness of the product is determined according to European standard EN 823.

The nominal thickness is given according to its tolerance as follows:

- Thickness : 8 mm ± 10 %

3.2. Mass per square meter

Mass per square metre is determined according to the standard EN 1602

The nominal value of mass per square metre is given according to its tolerance as follows:

Mass per square metre: 585 g/m² ± 10 %.

3.3. ER.2 Safety in case of fire

Reaction to fire

The fire class of performance is determined according to EN 13501-1.

The classification of the product is: D s2 d2

3.4. ER.3 Hygiene, health and environment

Resistance to water vapour

The water vapour diffusion resistance μ is determined according the EN 12572, conditions C.

The nominal value μ is higher or equal than 8.10^4.

The thickness of equivalent layer of air having an equivalent vapour diffusion resistance is : Sd = 706 m.

VOC (volatile organic compounds)

The VOC emissions of STARFLEX PRO have been determined according to ISO 16000 parts -3, -6, -9, -11.

The class corresponding to the results obtained is : A +

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

3.5. ER. 6 Energy, economy and heat retention

Core thermal resistance

The core thermal resistance is determined according to the standard EN 16012:2015 (at a mean temperature of 10°C). The fractile core thermal resistance $R_{(10°C\ 90/90)}$ representing at least 90% of the production with a confidence level of 90% has been calculated using the procedures as detailed in EN 16012:2015.

The fractile value of thermal resistance is $R_{(10°C,90/90)}$ = 0.22 m².K/W representing at least 90 % of the production with a confidence level of 90%.

The declared thermal resistance RD has been calculated by rounding $R_{(10°C\ 90/90)}$ downwards to the nearest 0.05 m2K/W according to EAD 040007-00-1201 : December 2015 (§2.2.9).

The declared value of thermal resistance is R_D= 0.20 m².K/W.

Thermal resistance for system for information: product and 2 air space (or 2 air gaps)

The thermal resistance of the system constituted by the product and air spaces between the product and neighbouring parallel surfaces of the envelope is given as information in present ETA.

The thermal resistance of system R_S is measured by guarded hot box method:

R_S = 1,40 m²K/W

3.6. Emissivity

The emissivity is determined on the 2 external films of the product according to EN 16012 : 2015.

The fractile value of emissivity according to EN ISO 10456 is $\varepsilon_S = \varepsilon_{90/90}$ = 0,03, representing at least 90% of the production with a confidence level of 90%.

The declared value of emissivity for both faces is ε_D = 0,05.

3.7. Durability aspects

Corrosion test:

The test is carried out according to ISO 9227:1991, T3 : “Corrosion tests in artificial atmospheres – Salt spray tests”. In order to check the behaviour of coatings of product with respect to corrosion when it is subjected to an air charged with chloride (for example salt fog).

The test results concerning the measure of loss of mass and the visual check of the state of surface of the product show that there is no sensitive loss of material.

3.8. Peel strength

The test is carried out according to EN ISO 11339 :

- before ageing, average of peel strength resistance : Fp = 28 N (14kN/m),
- after ageing, average of peel strength resistance : Fp = 27 N (13kN/m).

The tolerance on the values measured is ±10 %.

3.9. Tensile strength

The measurement of tensile strength parallel to product surface is carried out according to EN 1608.

The value of the tensile strength is the maximal of the strength σ_t applied in two cases:

- With the product alone :
  - before ageing : σ_t = 1048 kPa,
  - after ageing : σ_t = 1174 kPa.
- With the product assembled using the adhesive tape :
  - before ageing : σ_t = 263 kPa,
  - after ageing : σ_t = 243 kPa.

The tolerance on the values measured is ± 10 %.

3.10. Resistance to tearing

The measurement of resistance to tearing is carried out according to the EN 12310-1 before and after ageing.

- before ageing : σ_t = 385 N,
- after ageing : σ_t = 335 N.

The tolerance on the values measured is ±10 %.

3.11. Sustainable use of natural resources (BWR7)

For the sustainable use of natural resources, no performance was investigated for this product.

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

In accordance with the European Assessment Document EAD 040007-00-1201, the applicable European legal act is: 1999/91/EC.

The system to be applied is: 3.

5. 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 with CSTB.

The original French version is signed By

Charles BALOCHE
Technical Director – CSTB