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## European Technical Assessment

**ETA 15/0300**  
of 02/12/2016

English translation prepared by LNEC; original version in Portuguese language

ISSN 2183-3362

Trade name of the construction product

*Designação comercial do produto de construção*

Product family to which the construction product belongs

*Família de produtos a que o produto de construção pertence*

Manufacturer

*Fabricante*

Manufacturing plant(s)

*Instalações de fabrico*

This European Technical Assessment contains

*A presente Avaliação Técnica Europeia contém*

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

*A presente Avaliação Técnica Europeia é emitida ao abrigo do Regulamento (UE) n.º 305/2011, com base no*

### R-ICB

In-situ formed loose fill thermal and/or acoustic insulation product made of granulated expanded cork

*Produto de isolamento térmico e/ou acústico realizado in-situ, constituído por grânulos soltos de cortiça expandida*

Sofalca – Sociedade Central de Produtos de Cortiça, Lda.

Estrada Nacional n.º 2, km 413.2

2205-213 Bemposta • Abrantes

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6 pages

*6 páginas*

European Assessment Document (EAD) No. 040313-00-1201

In-situ formed loose fill thermal and/or acoustic insulation product made of granulated expanded cork, edition July 2016

*Documento de Avaliação Europeu (EAD) n.º 040313-00-1201 – In-situ formed loose fill thermal and/or acoustic insulation product made of granulated expanded cork, edição de julho de 2016*

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## 1. Technical description of the product

This European Technical Assessment (ETA) applies to in-situ formed loose fill thermal and/or acoustic insulation product made of granulated expanded cork with trade name *R-ICB*. The ETA holder is ultimately responsible for the product specified in this ETA.

The in-situ formed loose fill insulation is obtained from in-house recycling of recirculated expanded cork waste resulting from the current manufacturing process of naturally agglomerated expanded cork blocks and boards. No binding agents or additives are added before, during or after in-situ application.

The granules are obtained by grinding and/or milling factory made products of expanded cork to different fragment sizes which are mixed to meet the desired final particle size distribution (2/9 mm).

The product is delivered to the construction works site packed in plastic fabric sacks with a nominal volume of 0.25 m<sup>3</sup>.

The in-situ loose fill insulation product is applied manually and may form layers (which serve as thermal and acoustic insulation) of any desired thickness, in new buildings and in rehabilitation works.

The European Technical Assessment is issued for the product on the basis of agreed data/information, deposited with Laboratório Nacional de Engenharia Civil, which identifies the product that has been assessed and judged. The European Technical Assessment applies only to products satisfying the requirements of this agreed data/information.

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

The in-situ formed loose fill granulated expanded cork is intended for use in fully supported specifications as:

- Thermal insulation and/or acoustic insulation (sound absorption, airborne sound insulation) in horizontal or low sloped surfaces of flat or pitched roofs and ceilings, inside cavities, or exposed on non-habitable attic floors;
- Thermal insulation and/or acoustic insulation (sound absorption, airborne/impact sound insulation) of ground or raised floors, inside cavities between beams, joist battens, and similar substructures.

The construction product shall not be used in places where it may be exposed to wetting, weathering and direct contact to soil, or exposed to compression loads.

Where necessary the loose fill insulation is used in conjunction with a water vapour barrier, a weatherproof or separation layer as specified by the designer, but such elements are not covered by this ETA.

Apart from meeting specific insulation requirements also requirements and regulations concerning components and materials to be used in combination with the thermal insulation as well as the entire solution buildup are necessary for the successful use of the insulation in the intended uses. Evaluation of the thermal insulation takes account of the end-use conditions.

Concerning the application of the insulation material, the respective national regulations shall be observed.

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

For evaluating the in-situ formed loose fill thermal and/or acoustic insulation product made of granulated expanded cork it is assumed that:

- a. The product will be transported, stored and installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals;
- b. The existing waterproofing layer (roofs, wet areas) shall be watertight and in good condition;
- c. The supporting element shall be sufficiently structurally sound to carry the additional imposed load exerted by the insulating layer without undue deformation;
- d. If required, the adequate ventilation above the insulation layer is assured;
- e. If required, a separation layer is provided.

This European Technical Assessment, based on the provisions, test and assessment methods in the EAD 040313-00-1201, have been written based upon the assumed intended working life of the in-situ formed loose fill insulation for the intended use of 50 years, provided that the product is subjected to appropriate use and maintenance.

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 product 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

Sampling, conditioning, testing and the assessment for the intended use of this in-situ formed loose fill thermal insulation according to the Essential Requirements were carried out in compliance with the EAD 040313-00-1201 – *In-situ formed loose fill thermal and/or acoustic insulation product made of granulated expanded cork*.

Table 1 presents the relevant performance of the product and the corresponding methods used in its assessment.

**TABLE 1**  
Performance of the product and methods used for its assessment

Basic requirement for construction works	Essential characteristic	Assessment method	Type of expression of product performance (level, class, description)
<b>BWR 2</b> Safety in case of fire	Reaction to fire	EN 13501-1	Class E
		CDR 2016/364	(insulating layer thickness $\geq 40$ mm)
		EN ISO 11925-2	
		EAD, Annex A	
<b>BWR 3</b> Hygiene, health and the environment	Biological resistance	EAD, Annex B (method A)	Intensity of growth: 0
		EN ISO 846, Table 4	
		EN 15101-1, Annex F (method B)	Class BA 3
		EN 15101-1, Table 5	
<b>BWR 4</b> Safety and accessibility in use	Corrosion developing capacity	EN 15101-1, Annex E	Copper coupon: CR <i>pass</i> Zinc coupon: CR <i>fail</i>
<b>BWR 5</b> Protection against noise	Sound absorption	EN 354	$\alpha_w = 0.55$ (H) (class D)
		EN ISO 11654	(reference thickness = 80 mm)
	Specific air flow resistivity (air flow resistance)	EN 29053 (method A)	$R_s = 0.072$ kPa.s/m ( $R = 9.1$ kPa.s/m <sup>3</sup> )
			(test thickness = 140 mm)
	Airborne sound insulation	EN ISO 10140-2	Performance not assessed
		EN ISO 10140-5	
		EN ISO 717-1	
Impact sound reduction	EN ISO 10140-3	Performance not assessed	
	EN ISO 10140-5		
	EN ISO 717-2		

TABLE 1

Performance of the product and methods used for its assessment (cont.)

Basic requirement for construction works	Essential characteristic	Assessment method	Type of expression of product performance (level, class, description)
BWR 6 Energy economy and heat retention	Thermal conductivity of insulation	EN 12667 EAD, Annex C EN 13170, Annex A	$\lambda_{10,dry,90/90} = 0.0406 \text{ W/(m.K)}$
		EAD, Annex C	$\lambda_{10,(23/50)} = 0.0463 \text{ W/(m.K)}$ $\lambda_{10,(23/80)} = 0.0481 \text{ W/(m.K)}$
		EN 10456 EAD, Annex C	Mass related moisture content: at 23 °C/50% RH $u_{23,50} = 0.025 \text{ kg/kg}$ at 23 °C/80% RH $u_{23,80} = 0.038 \text{ kg/kg}$  Mass related moisture content conversion coefficients: $f_{u1} = 5.13 \text{ kg/kg (dry - 23/50)}$ $f_{u1} = 2.83 \text{ kg/kg (23/50 - 23/80)}$  Moisture conversion factors $F_{m1} = 1.14 \text{ (dry - 23/50)}$ $F_{m2} = 1.04 \text{ (23/50 - 23/80)}$
	Thermal resistance (R) of insulating layer		Loose fill insulation settlement correction* $d_{cor} = 0.95 \cdot d_N$ $R = d_{cor} / \lambda$
	Water absorption (short term, partial immersion)	EN 1609 (method A)	$W_p \leq 0.5 \text{ kg/m}^2$ (test thickness = 150 mm)
	Water vapour diffusion resistance	EN 12086 (set A)	$\mu = 1.1$ (test thickness = 100 mm)
	Loose bulk density ( $\rho$ )	EN 1097-3	$\rho = 75 \text{ kg/m}^3 \pm 10\%$
	Settlement	EN 15101-1, Annex B (method B.1)	$S_{cyc} = 2.03\%$ Class SH 5

\* Based on settlement test results and classification ( $S_{cyc}$ , Class SH 5). Regarding the fact that other types of settlement were not assessed, the reduction value may be different in other cases.

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

According to decision 1999/91/EC<sup>1</sup> of the European Commission the system of assessment and verification of constancy of performance 3 applies.

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

##### **5.1 General**

The ETA is issued on the basis of agreed data/information, deposited with LNEC, which identifies the product that has been assessed and judged. It is the manufacturer's responsibility to make sure that all those who use the product are appropriately informed of the specific conditions laid down in this ETA.

Changes to the loose fill thermal and/or acoustic insulation product made of granulated expanded cork or its production, or its application process should be notified to LNEC before the changes are introduced. LNEC will decide whether or not such changes affect the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

##### **5.2 Tasks for the manufacturer**

###### **Factory production control**

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed.

This production control system shall ensure that the product is in conformity with this ETA.

The manufacturer may only use components stated in the technical documentation of this ETA. The incoming raw materials are subjected to verifications by the manufacturer before acceptance.

The factory production control shall be in accordance with the Control Plan<sup>2</sup>, which is part of the Technical Documentation of this ETA. The control plan has been agreed between the manufacturer and the LNEC and is laid down in the context of the factory production control system operated by the manufacturer and deposited within LNEC. The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

###### **Other tasks for the manufacturer**

For assessing the loose fill insulation product the results of the tests performed as part of the assessment for the ETA shall be used, unless there are changes in the production line or plant. In such cases the necessary testing has to be agreed with LNEC.

The declaration of performance of the loose fill insulation product made of granulated expanded cork to be drawn up by the manufacturer following the issuing of this ETA shall include its reference number and issuing date.

Changes to the loose fill insulation product, its production or its application process should be notified to LNEC before the changes are introduced. LNEC will decide whether or not such changes affect the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

<sup>1</sup> Official Journal of the European Communities L29/44 of 25.01.1999.

<sup>2</sup> The Control Plan is a confidential part of this European Technical Assessment and is only handed over to the notified body or bodies involved in the procedure of assessment and verification of constancy of performance. See section 5.3.

### 5.3 Tasks for the notified body (bodies)

As the assessment and verification of constancy of performance for the product is system 3, there is no involvement of the notified body after the ETA has been issued.

In cases where the provisions of the ETA and its control plan are no longer fulfilled, the manufacturer shall withdraw the declaration of performance issued and inform LNEC without delay.

Issued in Lisboa on 02/12/2016

By  
Laboratório Nacional de Engenharia Civil (LNEC)

THE BOARD OF DIRECTORS

A handwritten signature in blue ink, appearing to read 'Carlos Pina', is written over the printed name.

Carlos Pina  
President



CDU 691.13:699.86(4)  
691.13:699.844(4)  
ISSN 2183-3362

Descriptors: Thermal insulation / Acoustic insulation / Granulated expanded cork / Europe  
Descritores: Isolamento térmico / Isolamento acústico / Cortiça expandida granulada / Europa

