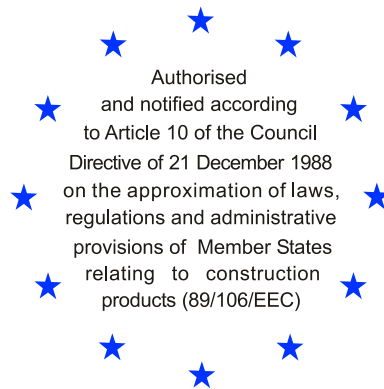


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European Technical Approval ETA-13/0658

Handelsnamn

Trade name

Innehavare

Holder of approval

Produktbeskrivning och avsedd användning

Generic type and use
of construction product

Giltighetstid

Validity:

från

from

t o m

to

Tillverkningsställe

Manufacturing plant

iCell lösull

iCell loose fill insulation

iCell AB

**Box 87
796 22 Älvdalen
Sweden**

Lösfyllnadsisolering av cellulosafiber

Insulation material made of loose, free cellulose fibres to be installed in building constructions for the purpose of thermal insulation.

2013-06-10

10.06.2013

2018-06-09

09.06.2018

iCell AB

**Klorbergsvägen 14
796 91 Älvdalen
Sweden**

Godkännandet innehåller

This Approval contains

8 Sidor

8 Pages



European Organisation for Technical Approvals

PX27775

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European Technical Approval is issued by SITAC in accordance with:
 - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹, modified by Council Directive 93/68/EEC² and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council³;
 - Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC⁴;
- 2 SITAC is authorized to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant(s). Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.
- 3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval
- 4 This European Technical Approval may be withdrawn by SITAC in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
- 5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of SITAC. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.
- 6 The European Technical Approval is issued by the approval body in English. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities L 40, 11.2.1989, p. 12

2 Official Journal of the European Communities L 220, 30.8.1993, p. 1

3 Official Journal of the European Union L 284, 31.10.2003, p. 25

4 Official Journal of the European Communities L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of product

This European Technical Approval applies to the thermal insulation material made of loose, free cellulose fibres with the trade name iCell lösull/iCell loose fill insulation

The cellulose fibres are produced from waste paper by mechanical crushing. During the manufacturing process the product is provided with fire retardants and additives for enhancing the biological resistance.

1.2 Intended use

The insulation material iCell lösull/iCell loose fill insulation is used for the production of thermal insulation layers, not exposed to compression loads, by means of machine processing at the place of use. The machine processing is carried out in dry conditions.

The insulation material can be used for the following intended uses:

Area of application for walls:

- space filling insulation in closed cavities of external and internal walls.

Area of application for roofs and ceilings/floors:

- insulation in closed cavities in arched or pitched roofs ($> 10^\circ$),
- cavity insulation in horizontal roofs and floor constructions,
- exposed insulation in horizontal or moderately pitched areas ($\leq 15^\circ$), e.g. insulation of ceilings which are accessible but not subjected to foot traffic.

The insulation material shall only be installed in structures where it is protected from wetting, weathering and direct contact to soil.

The provisions made in this European Technical Approval are based on an assumed working life of the insulating material of 50 years, provided that the conditions laid down in clauses 4.2, 5.1 and 5.2 for the packaging, transport, storage, installation and use are met. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the approval 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.

2 Characteristics of product and methods of verification

2.1 Composition and production method

In regard to the composition and production method the insulation material shall correspond to that which was the subject to the approval tests. Composition and production method are deposited with SITAC.

2.2 Density

The density is determined according to ISO/CD 18393. Depending on the area of application the densities stated in Table 1 shall be observed and controlled by the installer.

Table 1

Area of application	Density, kg/m ³ (dry)
Cavity insulation in internal and external walls	45-65
Insulation in closed cavities in arched and pitched roofs 25°-45°	40-65
Cavity insulation in arched and pitched roofs and floor constructions ≤25°	40-65
Exposed insulation in horizontal or moderately arched or pitched areas (≤ 15°)	27-40

2.3 Settlement S_D

The settlement S_D is determined according to ISO/CD 18393 and test methods stated in Table 2. The maximum values of settlement stated in Table 2 are not exceeded.

Table 2

Test method according to ISO/CD 18393	Maximum settlement, %
Method A – Settling by impact excitation	9,2
Method C – Settling of wall cavity insulation by vibration	0
Method D – Settling by specified climatization	14,0

2.4 Settlement S_{CYC}

No performance determined.

2.5 Thermal conductivity

The thermal conductivity is determined at the reference temperature of 10°C according to EN 12667.

The fractile value of thermal conductivity for the density range given in clause 2.2 (27 to 44 kg/m³), representing at least 90% of the production with a confidence level of 90% is $\lambda_{10,dry,90,90} = 0,0398 \text{ W/(m} \cdot \text{K)}$.

The declared value of thermal conductivity, determined according to EN ISO 10456 for a moisture content of the insulation material at 23°C/50% relative humidity, is

$$\lambda_D = 0,040 \text{ W/(m} \cdot \text{K)} \text{ (density 27-40 kg/m}^3\text{)}$$

The fractile value of thermal conductivity for the density range given in clause 2.2 (40 to 65 kg/m³), representing at least 90% of the production with a confidence level of 90% is $\lambda_{10,dry,90,90} = 0,0383 \text{ W/(m} \cdot \text{K)}$.

The declared value of thermal conductivity, determined according to EN ISO 10456 for a moisture content of the insulation material at 23°C/50% relative humidity, is

$$\lambda_D = 0,039 \text{ W/(m} \cdot \text{K)} \text{ (density 40-65 kg/m}^3\text{)}$$

- Moisture conversion factor $f_{u,1} = 0,075$

2.6 Reaction to fire

The reaction to fire of the insulating material is tested according to the standard EN ISO 11925-2 and classified according to the standard EN 13501-1. The insulating material meets the criteria of class E according to EN 13501-1.

2.7 Resistance to the growth of mould

Resistance to the growth of mould was determined according to CUAP "In situ formed loose fill thermal insulating material and/or acoustic insulation material made of vegetable or animal fibres", Edition June 2003. The assessment of the growth of fungi according to EN ISO 846 resulted in evaluation level 1 for iCell lösull/iCell loose fill insulation.

2.8 Airflow resistance

Airflow resistance of the insulating material is determined according to the standard EN 29053, Method A. The mean value of the airflow resistance per unit length at a density of 24 kg/m³ is 2.5 kPa·s/m² or more density of 45 kg/m³ is 16.3 kPa·s/m² or more.

2.9 Corrosion-developing capacity

No performance determined.

2.10 Retention of additives

The verification of the retention of additives according to CUAP 12.01/02c12 "In situ formed loose fill thermal insulating material and/or acoustic insulation material made of vegetable or animal fibres", Edition June 2003, Revision February 2013), was determined. No decrease in the reaction to fire class nor resistance to the growth of mould have been observed.

2.11 Water absorption

No performance determined.

2.12 Emission of dangerous substances

The insulation material shall comply with the provisions of Guidance Paper H ("A harmonized approach related to dangerous substances under the construction product directives", Revision August 2002).

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the product falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive 89/106/EWG, these requirements need also to be complied with, when and where they apply.

With regard to health protection the product meets the product type 3 according to the EOTA assessment criteria ("In situ formed loose fill thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres" Edition June 2003, Revision February 2013).

2.13 Critical moisture level

No performance determined.

3 In addition Evaluation and attestation of conformity and CE-marking

3.1 System of attestation of conformity

According to the decision 1999/91/EC of the European Commission amended by 2001/596/EC the system 3 attestation of conformity applies.

This system of attestation of conformity is defined as follows:

- a) Tasks of the manufacturer:
 - factory production control,
- b) Tasks of the notified body:
 - initial type-testing of the product,

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 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 and the components are in conformity with this European Technical Approval.

The manufacturer shall only use raw materials stated in the technical documentation of this ETA.

The factory production control shall be in accordance with the control plan which is a part of the technical documentation of this ETA. The control plan has been agreed between the manufacturer and SITAC and is laid down in the context of the factory production control system operated by the manufacturer and SITAC

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

3.2.1.2 Other tasks of manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is notified for the task referred to in section 3.1 in the field of thermal insulation materials in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in section 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body involved.

The manufacturer shall make a declaration of conformity, stating that the product is in conformity with the provisions of this ETA.

3.2.2 Tasks of the approved body

The approved body shall perform the:

- initial type-testing of the product

The approved body shall retain the essential points of its actions referred to above and state the results obtained and conclusion drawn in written reports.

For initial type-testing of the product the results of the tests performed as a 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 initial type-testing has to be agreed between SITAC and the approved bodies involved.

3.3 CE marking

The CE marking shall be affixed on the packaging or on the accompanying commercial documents. The letters 'CE' shall be accompanied by the following additional information:

- name and address of the manufacturer,
- last two digits of the year in which the CE marking was affixed,
- number of the ETA,
- trade name of the product,
- density depending on the area of application,
- filling weight,
- declared value of thermal conductivity,
- reaction to fire class according to EN 13501-1.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The ETA is issued for the product on the basis of agreed data/information, deposited with SITAC, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to SITAC before the changes are introduced. SITAC will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

4.2 Installation

The thermal insulation material shall only be installed in structures where it will be protected from wetting and weathering and direct contact to soil.

The installation instruction given by manufacturer shall be taken into account. Machine installation of the insulation material shall be performed by companies trained by the manufacturer. In case of exposed insulation in pitched areas ($\leq 10^\circ$) slipping of the insulation material shall be avoided by the appropriate measures.

The product shall be protected from moisture during installation. The insulation material shall not to be exposed to compression loads. The conditions according to clause 1.2 shall be taken into account.

4.2.1 Parameters for the design

4.2.1.1. Design value of thermal conductivity

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

4.2.1.2. Nominal thickness

When calculating the thermal resistance, the nominal thickness of the insulation layer according to Table 4 shall be applied.

Table 4

Area of application	Nominal thickness
Cavity insulation in walls	clear span of the filled cavity
Cavity insulation in arched and pitched roofs (> 15°), horizontal roofs and floor constructions	clear span of the filled cavity
Exposed insulation in horizontal and moderately pitched areas (≤ 15°)	Up to 350 mm 15% and over 350-500 mm 20% over 500 mm please contact the manufacturer, installation thickness should be added to the nominal thickness*

*Recommended value by the manufacturer.

The insulation layer shall have a constant installation thickness taking into account the nominal thickness. For that purpose suitable height marks shall be arranged in sufficient distances before the processing. The executing company shall check the installation thickness.

When blowing in into closed cavities it shall be made sure by appropriate measures (e.g. control drillings) that the cavity is completely filled with the insulation material.

4.2.1.3. Water vapour diffusion resistance

For the determination of the diffusion-equivalent air layer thickness of the insulating material the water vapour diffusion resistance factor $\mu = 1$ shall be used for calculating.

4.2.1.4. Installation density

Depending on the area of application the density at built-in stage stated in Table 1, clause 2.2 shall be observed. The density is determined by calculation as a quotient from the mass of the material brought in and the full volume. The execution company shall check the density.

4.2.2 Executing companies

The insulation material may only be machine processed by companies stated in a list of the manufacturer which have adequate experience in installing the material. Concerning this matter the manufacturer has to train these companies.

5 Indications to the manufacturer

5.1 Packaging, transport and storage

Packaging of the product shall be performed such that the product is protected from moisture during transport and storage, unless other measures are foreseen by the manufacturer for this purpose.

5.2 Use, maintenance, repair

In the information accompanying the CE marking the manufacturer shall specify that the product shall be installed following the installation instruction given by the manufacturer (machine processing by trained companies according to 4.2.2 only) and that it shall be protected from moisture during transport, storage and installation.

On behalf of SITAC

Borås, 10 06 2013

A handwritten signature in blue ink, appearing to be 'Lennart Månsson', written over a faint, illegible stamp or background.

Lennart Månsson