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Authorised and notified according to Article 10 of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products (89/106/EEC)

DIBt

Mitglied der EOTA
*Member of EOTA*

# European Technical Approval ETA-03/0057

English translation prepared by DIBt - Original version in German language

| | | |
|---|---|---|
| Handelsbezeichnung<br>*Trade name* | | flexCL® |
| Zulassungsinhaber<br>*Holder of approval* | | HOMATHERM GmbH<br>Ahornweg 1<br>06536 Berga<br>DEUTSCHLAND |
| Zulassungsgegenstand und Verwendungszweck<br>*Generic type and use of construction product* | | Wärmedämmplatten aus Zellulose- und Polyesterfasern<br>*Thermal insulation boards made of cellulose and polyester fibres* |
| Geltungsdauer:<br>*Validity:* | vom<br>*from* | 15 August 2006 |
| | bis<br>*to* | 23 February 2009 |
| | verlängert vom<br>*extended from* | 23 February 2009 |
| | bis<br>*to* | 23 February 2014 |
| Herstellwerk<br>*Manufacturing plant* | | HOMATHERM GmbH<br>Ahornweg 1<br>06536 Berga<br>DEUTSCHLAND |

Diese Zulassung umfasst
*This Approval contains*

8 Seiten
*8 pages*

# I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by Deutsches Institut für Bautechnik 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 products[1], modified by Council Directive 93/68/EEC[2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council[3];
- Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998[4], as amended by law of 31 October 2006[5];
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC[6].

2 Deutsches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. 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 Deutsches Institut für Bautechnik, 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 Deutsches Institut für Bautechnik. 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 its official language. This version corresponds fully to the version circulated in EOTA. Translations into other languages have to be designated as such.

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1 Official Journal of the European Communities N° L 40, 11 February 1989, p. 12
2 Official Journal of the European Communities N° L 220, 30 August 1993, p. 1
3 Official Journal of the European Union N° L 284, 31 October 2003, p. 25
4 *Bundesgesetzblatt Teil I 1998*, p. 812
5 *Bundesgesetzblatt Teil I 2006*, p.2407, 2416
6 Official Journal of the European Communities N° L 17, 20 January 1994, p. 34

# II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

## 1 Definition of product and intended use

### 1.1 Definition of the construction product

This European technical approval applies to the thermal insulation boards

**"flexCL®"**

made of cellulose fibres with additional polyester fibres as support and binding fibres. The cellulose fibres are recovered from waste paper. During the manufacturing process the product will be provided with a fire protection equipment.

The boards are made having the following dimensions:

Nominal thickness: minimum 40 mm to 180 mm maximum

Nominal length: 1200 mm

Nominal widths: 625 mm

570 mm (starting from a nominal thickness of 60 mm).

The information concerning the dimensions correspond to the manufacturer's delivery program.

The thermal insulation boards are not coated.

### 1.2 Intended use

The thermal insulation boards, not exposed to compression loads, can be used for the following intended uses:

Area of application for walls

- Cavity insulation of external and internal walls of timber frame constructions and similar structures
- Internal insulation of walls including added facing shells without substructure
- Cavity insulation in internal walls

Area of application for roofs and ceilings/floors

- Insulation between rafters and timber beams as well as in cavities of corresponding structures
- Insulation on topmost storey ceilings which are not subjected to foot traffic, however, are accessible
- Internal insulation of ceiling or roof, e.g. insulation beneath the loadbearing construction (e.g. rafters), suspended ceiling
- Cavity insulation between flooring joist battens and similar substructures

The thermal insulation boards shall only be installed in structures where they are protected from precipitation, weathering and moisture.

In external walls, which towards the outside end with a curtain wall (ventilated façade), the thermal insulation boards shall be built in only, if they are protected by a facing (e.g. from particleboards) towards the ventilation plane. An application directly behind the ventilation plane is inadmissible.

As to the application of the thermal insulation boards, the respective national regulations shall in addition be observed.

The provisions made in this European technical approval are based on an assumed working life of the thermal insulation boards of 50 years, provided that the conditions laid down in sections 4.2, 5.1 and 5.2 for packaging, transport, storage, installation and use are met. 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.

## 2 Characteristics of the product and methods of verification

### 2.1 Composition and production methods

With regard to composition and production method the thermal insulation boards shall correspond to those which were the basis for the approval tests. Composition and production methods are deposited with Deutsches Institut für Bautechnik. See also clause 4.1.

### 2.2 Dimensions

The thickness is determined according to the standard EN 823[7]. The test is performed with a load of 50 Pa.

On the basis of the standard EN 13162[8], Table 1, the deviation from the nominal thickness does not amount to more than:

-3 % or[9] –3 mm or +10 % or[10] +10 mm.

The class for thickness tolerances is T3.

Length and width of the thermal insulation boards are determined according to the standard EN 822[11]. The deviation from the nominal length is not more than ± 2 %. The deviation from the nominal width does not exceed the value of ± 1.5 %.

The squareness is determined according to the standard EN 824[12]. The deviation from the squareness in the direction of length and width does not amount to more than 5 mm/m.

The flatness is determined according to the standard EN 825[13]. The deviation from the flatness does not exceed the value of 6 mm.

### 2.3 Density

The density of the thermal insulation boards is determined according to the standard EN 1602[14]. It amounts to at least 60 kg/m$^3$ and does not exceed the value of 90 kg/m$^3$.

### 2.4 Water vapour diffusion

The determination of the water vapour permeability is performed according to the standard EN 12086[15]. The water vapour diffusion resistance coefficient amounts to at least $\mu$ = 2 and does not exceed the value of $\mu$ = 3.

### 2.5 Water absorption

No performance determined.

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7 EN 823:1994-07: transposed in Germany by DIN EN 823:1994-11: Thermal insulating products for building applications – Determination of thickness

8 EN 13162:2001-05: transposed in Germany by DIN EN 13162:2001-10: Thermal insulation products for buildings - Factory made mineral wool (MW) products

9 Whichever gives the greatest numerical tolerance

10 Whichever gives the smallest numerical tolerance

11 EN 822:1994-07: transposed in Germany by DIN EN 822:1994-11: Thermal insulating products for building applications – Determination of length and width

12 EN 824:1994-07: transposed in Germany by DIN EN 824:1994-11: Thermal insulating products for building applications – Determination of squareness

13 EN 825:1994-07 transposed in Germany by DIN EN 825:1994-11: Thermal insulating products for building applications – Determination of flatness

14 EN 1602:1996-11: transposed in Germany by DIN EN 1602:1997-01: Thermal insulating products for building applications – Determination of the apparent density

15 EN 12086:1997-06: transposed in Germany by DIN EN 12086:1997-08: Thermal insulating products for building applications – Determination of water vapour transmission properties

## 2.6 Dimensional stability under specified temperature and humidity conditions

Dimensional stability of the thermal insulation boards is determined according to the standard EN 1604[16]. The test is performed after a 48 h storage at (70 ± 2) C° and (50 ± 5) % relative humidity.

The dimensional changes in lengths and widths amount to a maximum of ± 0.5 %. The dimensional changes in thickness amount to a maximum of ± 1.0 %.

## 2.7 Tensile strength

The tensile strength of the thermal insulation boards perpendicular to faces, determined according to the standard EN 1607[17], amounts to at least 2.5 kPa.

The tensile strength parallel to faces according to the standard EN 1608[18] is sufficient to support twice the self-weight of the product.

## 2.8 Thermal conductivity

The thermal conductivity of the thermal insulation boards is determined at a reference temperature of 10° C according to EN 12667[19]. The declared value of thermal conductivity, determined according to the standard EN ISO 10456[20] for a moisture content of the insulation product at 23 °C/50 % relative humidity, amounts to $\lambda$ = 0.039 W/(m·K) and is representtative for at least 90 % of the production with a confidence level of 90 %. This declared value of the thermal conductivity applies to the density range given in section 2.3.

For conversion of humidity the following applies:

- mass-related moisture content at 23 °C/50 % relative air humidity: u = 0.04 kg/kg
- mass-related moisture content at 23 °C/80 % relative air humidity: u = 0.13 kg/kg
- mass-related moisture conversion coefficient: $f_u$ = 0.52

For the admissible deviation of an individual value of the thermal conductivity from the declared value the method described in EN 13172[21], Annex F applies.

## 2.9 Reaction to fire

The reaction to fire of the thermal insulation boards is tested according to the standard EN ISO 11925[22] and classified according to the standard EN 13501-1[23]. The thermal insulation boards meet the criteria of class E according to EN 13501-1.

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16 EN 1604:1996+A1:2006: transposed in Germany by DIN EN 1604:2007-06: Thermal insulating products for building applications – Determination of dimensional stability under specified temperature and humidity conditions

17 EN 1607:1996-11: transposed in Germany by DIN EN 1607:1997-01: Thermal insulating products for building applications – Determination of tensile strength perpendicular to faces

18 EN 1608:1996-11: transposed in Germany by DIN EN 1608:1997-01: Thermal insulating products for building applications - Determination of tensile strength parallel to faces

19 EN 12667:2001-01: transposed in Germany by DIN EN 12667:2001-05: Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Products of high and medium thermal resistance

20 EN ISO 10456:2007-12: transposed in Germany by DIN EN ISO 10456:2008-04: Building materials and products – Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values

21 EN 13172:2001+A1:2005: transposed in Germany by DIN EN 13172:2005-09: Thermal insulation products - Evaluation of conformity

22 EN ISO 11925-2:2002-02: transposed in Germany by DIN EN ISO 11925-2:2002-07: Reaction to fire tests for building products - Part 2: Ignitability when subjected to direct impingement of flame

23 EN 13501-1:2007: transposed in Germany by DIN EN 13501-1:2007-05: Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

### 2.10 Resistance to the growth of mould

Verification of the resistance to the growth of mould was performed according to the EOTA testing procedure ("Factory-made thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres" Edition June 2003, Rev. 1 June 2005). The assessment of the growth of fungi according to the standard EN ISO 846[24], Table 4, resulted in the evaluation level 0.

### 2.11 Corrosion-developing capacity on metal construction products

No performance determined.

### 2.12 Retention of additives

The verification of the retention of additives according to the EOTA testing procedure ("Factory-made thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres" Edition June 2003, Rev. 1 June 2005) was passed.

### 2.13 Emission of dangerous substances or radiation

Note: In addition to the specific clauses relating to dangerous substances contained in this European technical approval, 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 Construction Products Directive, these requirements need also to be complied with, when and where they apply.

## 3 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[25] amended by decision 2001/596/EC[26] system 3 of the attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 3: Declaration of conformity of the product by the manufacturer on the basis of:

(a) Tasks for the manufacturer:

(1) factory production control;

(b) Tasks for the approved body:

(2) initial type-testing of the product.

Note: Approved bodies are also referred to as "notified bodies".

### 3.2 Responsibilities

3.2.1 Tasks for 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 insure that the product is in conformity with this European technical approval.

The manufacturer may only use initial materials stated in the technical documentation of this European technical approval.

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24 EN ISO 846:1997-06: transposed in Germany by DIN EN ISO 846:1997-10: Plastics - Evaluation of the action of microorganisms

25 Official Journal of the European Communities L 29/44 of 03.02.1999

26 Official Journal of the European Communities L 209/33 of 02.08.2001

The factory production control shall be in accordance with the control plan of 23 February 2009 relating to the European technical approval ETA-03/0057 issued on 23 February 2009 which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.[27].

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 for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 in the field of insulation products in order to undertake the actions laid down in section 3.2.2 For this purpose, the control plan referred to in sections 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 construction product is in conformity with the provisions of the European technical approval ETA-03/0057 issued on 23 February 2009.

3.2.2 Tasks for the approved bodies

The approved body shall perform the

- initial type-testing of the product

in accordance with the provisions laid down in the control plan.

For initial type-testing the results of the test carried out as part of the assessment for the European technical approval shall be used, provided that nothing changes in the production or at the factory. Otherwise the necessary initial type-testing shall be agreed on between Deutsches Institut für Bautechnik and the approved bodies involved.

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

## 3.3 CE marking

The CE marking shall be affixed on the product, on a label attached to the product, on the packaging or on the accompanying commercial documents, e. g. the EC declaration of conformity. The letters "CE" shall be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- number of the European technical approval,
- identification of the product (trade name),
- nominal dimensions of length, width and thickness,
- class for thickness tolerance,
- density range,
- declared value of thermal conductivity,
- declared value of thermal resistance[28],
- reaction to fire: class E according to EN 13501-123,
- dimensional stability under specified temperature and humidity conditions

27 The control plan is a confidential part of the documentation of this European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2.

28 The declared value of the thermal resistance shall be calculated from the nominal thickness and the corresponding declared value of the thermal conductivity.

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

### 4.1 Manufacturing

The European technical approval is issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, 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 Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

### 4.2 Installation

Installation of the thermal insulation boards shall be performed following the installation instructions by the manufacturer.

The product shall be protected from moisture during installation. The thermal insulation boards shall not be exposed to compression loads.

The conditions according to clause 1.2 shall be observed.

4.2.1 Parameters for the design of construction works or parts of construction works

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 thermal insulation boards shall be applied.

4.2.1.3 Water vapour diffusion resistance coefficient

For the determination of the diffusion-equivalent air layer thickness of the insulating layer the water vapour diffusion resistance factor $\mu$ = 2 and/or 3 shall be applied for calculating.[29]

## 5 Indications to the manufacturer

### 5.1 Packaging, transport and storage

Packaging of the product shall be performed such that the thermal insulation boards are 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 is to be protected from moisture during transport, storage and installation.

Dipl.-Ing. E. Jasch
President of Deutsches Institut für Bautechnik
Berlin, 23 February 2009

*beglaubigt:*
Iffländer

29 The value more unfavourable for the construction work shall be applied each.