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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-05/0037

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung *Trade name*	Thermo-Hanf Premium Thermodek-Hanf
Zulassungsinhaber *Holder of approval*	Hock GmbH & Co. KG Industriestraße 2 86720 Nördlingen DEUTSCHLAND
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*	Dämmstoff aus Hanf- und Polyesterfasern *Insulating material made of hemp and polyester fibres*
Geltungsdauer: vom *Validity: from* bis *to*	18 July 2006 2 March 2010
Herstellwerk *Manufacturing plant*	NAPRO GmbH + Co. KG Industriestraße 2 86720 Nördlingen

Diese Zulassung umfasst *This Approval contains*	8 Seiten *8 pages*
Diese Zulassung ersetzt *This Approval replaces*	ETA-05/0037 mit Geltungsdauer vom 02.03.2005 bis 02.03.2010 *ETA-05/0037 with validity from 02.03.2005 to 02.03.2010*

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], zuletzt geändert durch Gesetz vom 06.01.2004[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 within EOTA. Translations into other languages have to be designated as such.

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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 Bundesgesetzblatt I, p. 812
5 Bundesgesetzblatt I, p.2, 15
6 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 insulating material with the designations

"Thermo-Hanf Premium" or

"Thermodek-Hanf"

made of hemp and polyester fibres, which are thermally hardened during manufacture.

The insulating material is produced in form of mats or rolls.

During the manufacturing process the product is provided with a fire protection equipment.

The insulating material in form of mats is made with the following dimensions:

Nominal thickness:	minimum 40 mm to 180 mm maximum
Nominal length:	1200 mm
Nominal widths:	625 mm
	580 mm

For nominal thicknesses of 40 mm and 60 mm the insulating material is also made in form of rolls.

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

The insulating material is not coated.

1.2 Intended use

The insulating material, 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 external walls between a supporting construction

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 insulating material shall only be installed in structures where it is protected from wetting, weathering and moisture.

The insulating material shall not be used in ventilated facades.

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

The requirements given in this European technical approval are based on an assumed intended working life of the insulating product of 50 years. This assumptions cannot be interpreted as a guarantee given by the producer, but are regarded only as a means for choosing the right product 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 insulating material shall correspond to that which was the basis for the approval tests. Composition and production methods are deposited with Deutsches Institut für Bautechnik.

The ETA is issued for the product on the basis of agreed data/information deposited with the Deutsches Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product/production process, which could result in this deposited data/information being incorrect, shall be notified to the Deutsches Institut für Bautechnik before the changes are introduced. The Deutsches Institut für Bautechnik 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/alterations to the ETA shall be necessary.

2.2 Dimensions

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

The deviation from the nominal thickness does not amount to more than:

-5 % or[8] –5 mm or +20 % or[9] +20 mm.

On the basis of the standard EN 13 162[10], Table 1, the class for thickness tolerances is T1.

Length and width of the insulating material 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 %.

2.3 Density

The density of the insulating material is determined according to the standard EN 1602[12]. It amounts to at least 24 kg/m^3 and does not exceed the value of 42 kg/m^3.

2.5 Water vapour diffusion

The determination of the water vapour permeability is performed according to the standard EN 12086[13]. The water vapour diffusion resistance coefficient amounts to at least $\mu = 1$ and does not exceed the value of $\mu = 2$.

2.5 Water absorption

The water absorption of the insulating material is determined according to the standard EN 1609, method A[14]. The mean value of water absorption at checked densities between 27 kg/m³ and 34 kg/m³ does not amount to more than 4.2 kg/m^2.

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7 EN 823:1994-07: Thermal insulating products for building applications - Determination of thickness

8 Whichever gives the greatest numerical tolerance

9 Whichever gives the smallest numerical tolerance

10 EN 13162:2001-05: Thermal insulation products for buildings - Factory made mineral wool (MW) products

11 EN 822:1994-07: Thermal insulating products for building applications - Determination of length and width

12 EN 1602:1996-11: Thermal insulating products for building applications - Determination of the apparent density

13 EN 12086:1997-06: Thermal insulating products for building applications - Determination of water vapour transmission properties

14 EN 1609:1996-11: Thermal insulating products for building applications - Determination of short-term water absorption by partial immersion

2.6 Dimensional stability under specified temperature and humidity conditions

Dimensional stability of the insulating material is determined according to the standard EN 1604[15]. 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 ± 1 %.

The dimensional changes in thickness amount to a maximum of -5 % / +10 %.

2.7 Tensile strength

The tensile strength of the insulating material parallel to faces according to the standard EN 1608[16] is sufficient to support twice the self-weight of the product.

2.8 Thermal conductivity

The thermal conductivity of the insulating material is determined at a reference temperature of 10° C according to EN 12667[17]. The declared value of thermal conductivity, determined according to the standard EN ISO 10456[18] for a moisture content of the insulating product at 23 °C/50 % relative humidity, amounts to

$$\lambda = 0.041 \text{ W/(m} \cdot \text{K)}$$

The declared value of the thermal conductivity is representative for at least 90 % of the production with a confidence level of 90 % and applies to the density range given in section 2.3. For conversion of humidity the following applies:

- the moisture content mass by mass at 23 °C/50 % relative humidity: $u = 0.071$ kg/kg
- the moisture content mass by mass at 23 °C/80 % relative humidity: $u = 0.180$ kg/kg
- the moisture content conversion coefficient mass by mass : $f_u = 0.152$

For the admissible deviation of an individual value of the thermal conductivity from the declared value the method described in EN 13172[19] Annex F applies.

2.9 Reaction to fire

The reaction to fire of the insulating material is tested according to the standard EN ISO 11925[20] and classified according to the standard EN 13501-1[21]. The insulating material meets the criteria of class E according to EN 13501-1.

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 (CUAP "Factory-made thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres" Edition June 2003). The assessment of the growth of fungi according to the standard EN ISO 846[22], Table 4, resulted in the evaluation level 0.

15	EN 1604:1996-11:	Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions
16	EN 1608:1996-11:	Thermal insulating products for building applications - Determination of tensile strength parallel to faces
17	EN 12667:2001-01:	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
18	EN ISO 10456:1999-12:	Building materials and products - Procedures for determining declared and design thermal values
19	EN 13172:2005-09:	Thermal insulation products - Evaluation of conformity
20	EN ISO 11925-2:2002-02:	Reaction to fire tests for building products - Part 2: Ignitability when subjected to direct impingement of flame
21	EN 13501-1:2002-06:	Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
22	EN ISO 846:1997-06:	Plastics - Evaluation of the action of microorganisms

2.11 Corrosion-developing capacity

No performance determined.

2.12 Retention of additives

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

2.13 Airflow resistance

The airflow resistance of the insulating material is determined according to the standard EN 29053[23], method A. The longitudinal airflow resistance at a checked density of 40 kg/m³ is 6.0 kPa · s/m² or more

2.14 Sound absorption

Table 1 contains the values for sound absorption of the insulating material determined according to EN ISO 354[24] and EN ISO 11654[25].

Table 1

Nominal thickness	Practical sound absorption coefficients α_p, calculated according to EN ISO 11654						Rating according to EN ISO 11654	
	Octave center frequency f/Hz						Weighted sound absorption coefficient α_w	Sound absorber class
	125	250	500	1000	2000	4000		
40 mm	0,20	0,45	0,70	0,85	0,90	0,95	0,70 (H)	C
160 mm	0,85	1,00	1,00	1,00	1,00	1,00	1,00	A

2.15 Dangerous substances

In addition to the specific clauses (see 2.1) 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 EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

3 Attestation of conformity and CE marking

3.1 System of attestation of conformity

System 3 according to the Council Directive 89/106/EEC[2], Annex III.2.(ii), second possibility:

a) Tasks for the manufacturer: - factory production control,

b) Tasks for the approved body: - initial type-testing of the product

3.2 Responsibilities

3.2.1 Tasks for the manufacturer; factory production control

The manufacturer shall have a factory production control system in his plant and shall exercise regular internal control of production.

All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. The factory production control system ensures that the product is in conformity with this European technical approval.

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23 EN 29053:1993-03: Acoustics - Materials for acoustical applications - Determination of airflow resistance

24 EN ISO 354:2003-12: Acoustics - Measurement of sound absorption in a reverberation room

25 EN ISO 11654:1997-07: Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

In the framework of the factory production control the manufacturer shall carry out tests and controls in accordance with the control plan[26].

Details of the extent, nature and frequency of testing and controls to be performed within the factory production control shall correspond to the control plan[26] which is part of the technical documentation of this European technical approval.

The results of the factory production control shall be recorded and evaluated. The records shall include at least the following information:

- Name of the product and of the initial materials,
- type of control or test,
- date of manufacture of the products and date of testing the products or of the initial materials,
- result of the control and the test and, as far as applicable, comparison with the requirements,
- signature of the person responsible for the factory production control.

On request the records shall be presented to Deutsches Institut für Bautechnik.

3.2.2 Tasks for the approved body

3.2.2.1 Initial type-testing of the product

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 body involved.

3.3 CE marking

The CE marking shall be affixed to the product, the packaging or the accompanying label. In addition to the initials "CE" the following information shall be given:

- Name, address and identifying mark of the manufacturer and the manufacturing plant,
- 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,
- thickness tolerance,
- density range,
- declared value of thermal conductivity,
- declared value of thermal resistance[27],
- conversion factor for the moisture content mass by mass,
- reaction to fire: (class)[28],
- water absorption
- dimensional stability under specified temperature and humidity conditions
- airflow resistance

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26 The control plan has been deposited at the Deutsches Institut für Bautechnik and is handed over only to the approved bodies involved in the conformity attestation procedure.

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

28 European classification of the reaction to fire of building materials according to Commission Decision 2000/147/EC of 8 February 2000 implementing Article 20 of Directive 89/106/EEC on construction products

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

4.1 Manufacture

With regard to composition and production method the insulating material shall correspond to that which was the basis for the approval tests. Composition and production methods are deposited with Deutsches Institut für Bautechnik.

4.2 Installation

The insulating material shall only be installed in structures where it is protected from wetting, weathering and moisture.

Installation of the insulating material shall be performed following the installation instructions given by the manufacturer.

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 insulating material 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 material the water vapour diffusion resistance factor μ = 1 and/or 2 shall be applied for calculating[29].

5 Recommendations for the manufacturer

5.1 Recommendations on packaging, transport and storage

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

5.2 Recommendations on installation

The product shall be protected from moisture during installation. The insulating material shall not be exposed to compression loads.

5.3 Accompanying information

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. Jasch
President of Deutsches Institut für Bautechnik
Berlin, 18 July 2006

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