



SLOVENSKI STANDARD SIST EN 13172:2002

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Toplotnoizolacijski proizvodi – Ugotavljanje skladnosti

Thermal insulating products - Evaluation of conformity

Wärmedämmstoffe - Konformitätsbewertung

Produits isolants thermiques - Evaluation de la conformité

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EUROPEAN STANDARD

EN 13172

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 91.100.60

English version

Thermal insulating products - Evaluation of conformity

Produits isolants thermiques - Evaluation de la conformité

Wärmedämmstoffe - Konformitätsbewertung

This European Standard was approved by CEN on 16 April 2001.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 88 "Thermal insulating materials and products", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2001, and conflicting national standards shall be withdrawn at the latest by March 2003.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

It supports a series of product standards for thermal insulating materials and products, which are necessary for the demonstration of compliance with the mandate derived from the Construction Products Directive 89/106/EEC.

This European Standard contains five informative annexes:

Annex A Certification of conformity (not for CE marking purposes)

Annex B Certification of conformity (for products of reaction to fire classes under system 1)

Annex C Declaration of conformity by the manufacturer (for the performance requirements under system 3)

Annex D Declaration of conformity by the manufacturer (for products of reaction to fire classes under system 4)

Annex E Guidance on the use of annex(es)

Evaluation of conformity is necessary for products in order to provide support for CE marking and for voluntary certification. The guidance contained in annex ZA of the product standards will determine which of the above annexes shall be used for CE marking.

Annex E describes how to use the annexes together with the mainbody of this standard to fulfill the requirements to the certification and/or declaration of conformity for a product.

Although the annexes are informative in this standard, their use by the manufacturer will require that they assume a normative status. When an annex is used the requirements in the annex shall be followed, as given in the text.

This standard applies to factory made products for buildings, factory made products for building equipment and industrial installations, in-situ products for buildings, in-situ products for building equipment and industrial installations and to external thermal insulation composite systems.

No existing European Standard is superseded.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the procedures and the criteria for the evaluation of the conformity of a thermal insulating product with the relevant European product specification.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

Not applicable

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply:

3.1

product

item or good produced under conditions which are presumed uniform and offered for sale under the same trade name

3.2

factory production control

the permanent, internal control of production exercised either by the manufacturer or by his agent on the responsibility of the manufacturer himself

NOTE Factory production control comprises operational techniques and all measures necessary to regulate and maintain the conformity of the product to the requirements of the relevant product standard.

3.3

third party

an approved organisation or body which may provide independent verification or approval

3.4

witness testing

test performed by the manufacturer at his own facilities with the representative of the third party present

4 General requirements

The evaluation of conformity involves either a manufacturer or a manufacturer in conjunction with a third party. The procedure is given either in the relevant product standard or agreed between parties; it shall include at least those tasks given in clause 5. The tasks for the third party and/or the manufacturer shall be carried out in accordance with the requirements of clause 7 of the product standard, which makes reference to this standard and one or more of the annexes B, C or D for the purposes of CE marking. Annex A is included for the purposes of voluntary product certification.

The content of clause 5 will also be met by supplementing the provisions of EN ISO 9001 with the requirements of this standard.

Products, which differ only in aspects that do not influence the properties required in the relevant product standard, may be collected into product groups.

Providing that a product within the group meets the requirements of the product standard then all products within the same group shall be deemed to comply with the product standard. If the same product fails to comply with the product standard then the whole group shall be assumed to have failed to comply with the product standard.

Products, which differ only with regard to some properties, may be grouped together by their common properties. Providing that a product within a defined group meets the requirements of the product standard, then all products within this group shall be deemed to comply with the product standard for the properties concerned. The properties outside this(these) common group(s) shall be tested product by product.

5 Requirements for factory production control - Tasks for the manufacturer

This clause specifies the requirements for factory production control that shall be fulfilled by the manufacturer for each factory

5.1 Organisation

5.1.1 General

Factory production control shall be operated according to a documented system that shall be given in a quality manual.

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5.1.2 Responsibility and authority

The responsibility, authority and the interrelationships between all personnel who manage, perform, or verify work affecting quality, shall be defined. This applies particularly to personnel who need the organisational freedom and authority to

- a) initiate action to prevent the occurrence of product nonconformity;
- b) identify and record any product quality problems.

5.1.3 Management representative for factory production control

At every place of production, a representative, with the appropriate knowledge and production experience, shall be appointed by the manufacturer and given responsibility for managing and supervising factory production control procedures and for ensuring that the requirements of this standard are implemented and maintained.

5.1.4 Management review

Management shall review at appropriate intervals the factory production control system to ensure its continuing suitability and effectiveness. Records of such reviews shall be maintained.

5.2 Quality manual

The manufacturer's documentation and procedures shall be relevant to the production and process control used during manufacture of the product, and shall provide the following details in a quality manual:

- a) the quality aims and the organizational structure, responsibilities and authority of the management with regard to product conformity;
- b) the procedures for specifying and verifying the raw materials and other constituent materials;
- c) the manufacturer's production control and other techniques, processes and systematic actions that will be used;
- d) the inspections and tests to be carried out before, during and after manufacture, together with their frequency (see 5.3) and possible retest procedures (see 5.4);
- e) the procedures for handling, storage, packaging, marking and labelling the product;
- f) the procedures for all personnel to receive training in the activities affecting quality (see 5.7).

5.3 Inspection and testing

5.3.1 General

All necessary facilities, equipment and personnel shall be available to carry out the inspections and tests. The manufacturer, or his representative, may employ, under contract, a subcontractor who has the facilities, equipment and personnel to carry out the inspection and tests on behalf of the manufacturer. The manufacturer shall be responsible for control, calibration, and maintenance of testing, measuring, and inspection equipment, whether owned by or on loan to the manufacturer or a subcontractor.

Inspection and testing shall be performed by personnel qualified for such tasks on the basis of documented appropriate education, training and/or experience.

Equipment shall be used in a manner that ensures that any measurement uncertainty is not greater than the required measurement capability.

5.3.2 Test equipment

Tests to demonstrate conformity of the finished product to the relevant product standard shall be performed using equipment in accordance with the test methods referred to in the product standard.

The test equipment shall be calibrated and/or checked against equipment or test specimens traceable to relevant internationally or nationally recognised reference test specimens (standards). Where no such reference test specimens exist, the basis used for internal checks and calibration shall be documented. The minimum frequencies of checks and calibrations for some test equipment are given in Table 1. Test equipment not listed in Table 1 shall be checked and/or calibrated in accordance with the manufacturer's documented procedures. The calibration records shall be maintained for a period of 10 years.

The manufacturer shall ensure that handling, preservation, and storage of test equipment is such that its accuracy and fitness for use is maintained.

Table 1 – Minimum frequencies of checks and calibrations of test equipment

Properties	Internal checks	Calibration of test equipment	Calibration of reference samples
Thickness	Once per month	Prior to first use of equipment and thereafter annually	Prior to first use of equipment and thereafter every 3 years
Mass	Once per month		
Mechanical properties	-		
Thermal properties ^a : - heat flow meter - guarded hot plate	Once per month Once per year		
^a For thermal properties a part of the calibration shall be to compare test results obtained by the manufacturer with those obtained by an approved body on the same sample.			

When production is intermittent the manufacturer shall ensure that test equipment which may be affected by the interruption is suitably checked and/or calibrated before use.

The calibration of all test equipment shall be repeated if any repair or failure which could upset the calibration of the test equipment occurs.

5.3.3 Inspection and testing of raw materials and other constituent materials

The manufacturer shall ensure that raw materials and other constituent materials conform to his specified requirements. In determining the checks necessary consideration shall be given to the control exercised by the supplier and the documented evidence of conformity.

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The manufacturer shall ensure that incoming raw materials and other constituent materials are used or processed only after they have been verified as conforming to the specified requirements. Where incoming material is released for urgent production purposes prior to verification it shall be identified and recorded in order to permit immediate recall in the event of nonconformity.

5.3.4 Inspection and testing during manufacture

In order to manufacture products which conform to the product standard the manufacturer shall control his process and perform inspection and tests as described in his quality manual.

5.3.5 Product testing

5.3.5.1 Direct testing

Prior to placing a product on the market that is to be manufactured to a given specification, the manufacturer shall carry out initial type testing in accordance with clause 6.

The manufacturer shall regularly test the finished products. These tests shall be carried out in accordance with the relevant product standard, using direct and/or indirect testing, in accordance with 5.3.5.2. One test is considered as the test(s) on one sample of the product consisting of one or more test specimens as specified in the relevant test or product standard.

The samples shall be drawn periodically from each production unit (line) according to the manufacturer's test plan. The minimum testing frequencies for the relevant properties for continuous production conditions are specified in the annex 'Factory production control' of the relevant product standard. For properties that are automatically recorded during the manufacturing process at a higher frequency than given in this

annex, the testing frequency may be lowered.

In the special case, where for a given property, a highly controlled production process can be demonstrated according to equation (1), the testing frequency may be reduced to once a day.

$$|T| \geq k \times s \quad (1)$$

where

T is the tolerance as specified in the product standard;
 s is the estimate of the standard deviation of the property;
 k is a factor corresponding to the number of test results available.

Table 2 gives the k factor corresponding to the two-sided 99 % tolerance interval with a confidence level of 99 %.

Table 2 – Values of k for two-sided 99 % tolerance interval with a confidence level of 99 %

Number of test results	k
10	5,59
20	4,16
50	3,39
100	3,10
200	2,92

NOTE For other numbers of test results see ISO 3207, *Statistical interpretation of data – Determination of a statistical tolerance interval*. Linear interpolation is acceptable.

Satisfaction of the requirement of equation (1) shall be verified in the event of failure and at least once a year.

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5.3.5.2 Indirect testing

Indirect testing is a means by which a given property may be assessed through tests on one or more other properties, with which a correlation has been established. Indirect testing may also be used to reduce the testing frequency of direct testing.

The correlation shall be established by suitable statistical means, e.g. regression analysis on the basis of adequate preliminary tests for each production unit (line). It shall be reexamined at prescribed intervals and after changes or modifications if these are likely to affect the correlation.

For each indirect testing procedure applied at the place of production the sampling plan and the compliance criteria, for the indirect property, shall be specified taking into account the relevant correlation between the corresponding properties.

The use of indirect testing shall result in at least the same confidence level on the property concerned as when using the direct testing.

In case of dispute the test method specified for the relevant property in the product standard shall be used.

5.3.6 Inspection and test status

The conformity or nonconformity of a product with the product standard shall be determined by tests and inspection which records passed, failed or due to be reclassified.

5.3.7 Inspection and test records (manufacturer's log)

The results of finished products inspection and testing shall be recorded in the manufacturer's log. The log shall contain a record of the product identification, the date and time of manufacture, and for each property the test methods, the test results, the required level, the inspection result and the identification of the person carrying out the inspection.

Where products do not meet the requirements of the product standard, a note shall be made in the manufacturer's log of the remedial measures taken.

The manufacturer's log shall be kept for at least 10 years.

5.4 Actions in the case of nonconforming products

If the result of a test or the inspection of a product is a failure, the manufacturer shall immediately take the steps necessary to rectify the deficiency. Products, which do not conform to the requirements of the product standard, shall be marked accordingly. When the deficiency has been identified and rectified, the test or inspection in question shall be repeated without delay according to the quality manual, to provide evidence that the defects have been overcome.

In the event that products are dispatched before the result of the inspection is available prompt notification shall be given to the customer to prevent any consequential damage and a record maintained of such notification.

Products, which have not met the value intended to be declared by the manufacturer for a given property shall be permitted to qualify for a lower value of that property and shall be labelled accordingly.

5.5 Handling, storage, packaging, and marking of products

In accordance with the quality manual (see 5.2) the manufacturer shall:

- 1) provide methods of handling that prevent damage or deterioration;
- 2) provide suitable storage areas or stock rooms to prevent damage or deterioration of the product;
- 3) control the packaging, storage and the marking processes.

5.6 Traceability of products

Individual products or product batches shall be identifiable and traceable with regard to their production origin.

5.7 Training of personnel

The manufacturer shall establish and maintain procedures for the identification of the training needs and shall provide for the training of all personnel in activities affecting quality.

Personnel performing specific assigned tasks shall be qualified on the basis of appropriate education, training and/or experience, as required.

Records of training shall be kept up to date.