



SLOVENSKI STANDARD
oSIST prEN 13172:2010
01-junij-2010

Toplotnoizolacijski proizvodi - Vrednotenje skladnosti

Thermal insulation products - Evaluation of conformity

Wärmedämmstoffe - Konformitätsbewertung

Produits isolants thermiques - Évaluation de la conformité

Ta slovenski standard je istoveten z: prEN 13172

<https://standards.iteh.ai/catalog/standards/sist/791afc80-1751-48cd-acf9-e099be27f309/sist-en-13172-2012>

ICS:

91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials
-----------	---	--

oSIST prEN 13172:2010

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 13172

April 2010

ICS 91.100.60

Will supersede EN 13172:2008

English Version

Thermal insulation products - Evaluation of conformity

Produits isolants thermiques - Évaluation de la conformité

Wärmedämmstoffe - Konformitätsbewertung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 88.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

<https://standards.cen.eu/catalog/standards/sist/791afc80-1751-48cd-acf9-e099be27f309/sist-en-13172-2012>



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	4
1 Scope	4
2 Normative references	5
3 Terms and definitions	5
4 General requirements	5
5 Requirements for factory production control - Tasks for the manufacturer	6
5.1 General	6
5.2 Organisation	6
5.2.1 General	6
5.2.2 Responsibility and authority	7
5.2.3 Management representative for factory production control	7
5.2.4 Management review	7
5.3 Quality manual	7
5.4 Inspection and testing	7
5.4.1 General	7
5.4.2 Test equipment	8
5.4.3 Inspection and testing of raw materials and other constituent materials	9
5.4.4 Inspection and testing during manufacture	9
5.4.5 Product testing	9
5.4.6 Inspection and test status	12
5.4.7 Inspection and test records (manufacturer's log)	12
5.5 Actions in the case of nonconforming products	12
5.6 Handling, storage, packaging, and marking of products	12
5.7 Traceability of products	12
5.8 Training of personnel	12
6 Initial type testing	13
Annex A (informative) Certification of conformity (not for CE marking purposes)	14
A.1 Bodies involved in the evaluation of conformity procedure	14
A.2 Tasks for the approved body	14
A.2.1 General	14
A.2.2 Initial inspection	14
A.2.3 Initial type testing	14
A.2.4 Continuous surveillance	15
A.3 Conformity mark	18
A.3.1 General	18
A.3.2 Certificate of conformity	18
A.3.3 Withdrawal of certificate	18
Annex B (informative) Certification of conformity (for products of reaction to fire classes under system	
1	20
B.1 Bodies involved in the evaluation of conformity procedure	20
B.2 Tasks for the approved body	20
B.2.1 General	20
B.2.2 Initial inspection of factory and factory production control	20
B.2.3 Initial type testing	21
B.2.4 Continuous surveillance, assessment and approval of the factory production control	22
B.3 Conformity mark	23
B.3.1 General	23
B.3.2 Certificate of conformity	23

B.3.3	Withdrawal of certificate	23
Annex C	(informative) Declaration of conformity by the manufacturer (for the performance requirements under system 3)	25
C.1	Bodies involved in the evaluation of conformity procedure	25
C.2	Tasks for the approved body	25
C.2.1	General.....	25
C.2.2	Initial type testing	25
C.3	Conformity mark	26
C.3.1	General.....	26
C.3.2	Declaration of conformity	26
Annex D	(informative) Declaration of conformity by the manufacturer (for products of reaction to fire classes under system 4)	27
D.1	Conformity mark	27
Annex E	(informative) Guidance on the use of annex(es)	28
E.1	CE marking	28
E.2	Voluntary product certification	29
E.3	Overview of the elements of the evaluation of conformity systems	29
Annex F	(informative) Criteria for assessing non-conformity – Procedures in case of a complaint	30
F.1	Complaint on the product declaration.....	30
F.1.1	General.....	30
F.1.2	Complaint on the declared thermal resistance or thermal conductivity	30
F.1.3	Complaint on other characteristics	31
F.2	Complaint on a lot	31
Bibliography	32

Tables

Table 1	— Minimum frequencies of checks and calibrations of test equipment	9
Table 2	— k factors for estimated standard deviations	11
Table A.1	— Audit testing to be performed for each factory	17
Table E.1	— Attestation of conformity systems for CE marking.....	28
Table E.2	— Overview of the elements of the evaluation of conformity systems	29

Foreword

This document (prEN 13172:2010) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13172:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Construction Products Directive 89/106/EEC.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. CEN (and/or CENELEC) shall not be held responsible for identifying any or all such patent rights.

This European Standard contains six 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)

Annex F Criteria for assessing non-conformity – Procedure in case of a complaint

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 main body of this standard to fulfil 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.

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

Not applicable

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

product

item or good produced under conditions which are presumed uniform to a given specification and placed on the market

3.2

factory production control

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

production line

assemblage of equipment that produces products using a continuous process

3.4

production unit

assemblage of equipment that produces products using a discontinuous process

3.5

production plant/factory

all the production equipment on the same site including all production lines and units

3.6

third party

approved organisation or body which is able to provide independent verification or approval

3.7

witness testing

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

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.

NOTE 1 Annex A is included for the purposes of voluntary product certification.

NOTE 2 Annex F is included for the purposes of describing how to handle the case of a complaint (outside the scope of a voluntary certification, in which case the annex A rules apply)

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

prEN 13172:2010 (E)

For ITT and FPC, each production line is considered separately.

For ITT and FPC, production units using the same process in one factory are considered together (as if one production line).

Products may be collected into product groups for *declaration and testing purposes* subject to the following conditions:

- They shall have the same type of production process and shall be derived from the same family of raw material; a distinction is made between glass wool and rock wool and between foams with different blowing agents.
- They shall differ only in aspects that do not influence the properties required in the relevant product standard.
- They shall be covered by a single thermal insulation standard, e.g. from the series EN 13162 to EN 13171.
- Products which differ only with regard to some properties may be grouped together by their common properties.
- Products which are identical except the facing and for which the different facings have been shown to have the same effect on the declared characteristics (e.g. regarding thermal properties, the gas tight facings of some PU products), may be grouped.

Products covered by more than one European Standard may be grouped for *testing purposes only* providing that,

- They have a common production specification and that they are from the same type of production process and the same family of raw material, e.g. cellular glass for the EN 13167 and prEN 14305.

The properties outside this (these) common group(s) shall be tested product by product.

Products which are outside the scope of a product standard cannot be grouped for declaration purposes with products declared under the scope of that standard.

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 for the properties concerned. 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.

5 Requirements for factory production control - Tasks for the manufacturer

5.1 General

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

5.2 Organisation

5.2.1 General

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

5.2.2 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.

5.2.3 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.

5.2.4 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.

5.3 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 5.4) and possible retest procedures (see 5.5);
- e) the procedures for handling, storage, packaging, marking and labelling the product (see 5.6);
- f) the procedures for all personnel to receive training in the activities affecting quality (see 5.8).

5.4 Inspection and testing

5.4.1 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.

prEN 13172:2010 (E)

5.4.2 Test equipment

5.4.2.1 General

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 manufacturer shall ensure the on-going suitability of the test equipment.

The test equipment (including software) shall be capable of achieving the accuracy required by the test methods referred to in the product standard.

5.4.2.2 Calibration

The accuracy of the test equipment shall be ensured by periodic calibration. All calibrations shall be traceable to relevant internationally or, failing that, nationally recognised reference test specimens (standards). Where no such reference test specimens exist, the basis used for calibration shall be documented.

The manufacturer shall define compliance criteria for each piece of equipment.

The equipment shall be calibrated

- before being placed into service,
- periodically at a frequency described by the manufacturer respecting the minimum frequencies specified in Table 1,
- after any repair (see 5.4.2.4)
- to verify the test results obtained before being taken out of service, other than for reasons falling under 5.4.2.4. If internal checks are sufficient (e.g. Heat Flow Meter (HFM) equipment) then this calibration is not needed.

Equipment not listed in Table 1 shall be calibrated in accordance with the manufacturer's documented procedures.

The manufacturer shall assess the calibration results and document the results of such assessments. The calibration records shall be maintained for a period of 10 years.

5.4.2.3 Internal checks on equipment

In addition to the traceable calibration, the manufacturer shall carry out internal checks to verify the stability of the equipment. The manufacturer shall define compliance criteria for results of internal checks. Internal checks shall be carried out at frequencies respecting the minimum frequencies given in Table 1.

Equipment not listed in Table 1 shall be checked in accordance with the manufacturer's documented procedures. Records of internal checks shall be maintained for a period of 10 years.

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

Properties	Internal checks	Calibration of test equipment
Thickness	Once per month ^a	Prior to first use of equipment and thereafter annually
Mass	Once per month ^a	
Mechanical properties	-	
Thermal properties ^b :		
- heat flow meter	Once per two weeks	
- guarded hot plate	Once per year	
<p>a A lower frequency of once every 3 months may be used when stability has been verified for a period of at least one year. If any single measurement indicates significant variation, the frequency reverts to once a month.</p> <p>b 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.</p> <p>The reference test specimen to be used is the IRMM 440 defining the European thermal conductivity level.</p>		

5.4.2.4 Defective equipment

Equipment that has been subjected to abuse or mishandling, which gives suspect results or has been shown to be defective or outside specified limits, shall be taken out of service immediately and marked as defective.

The manufacturer shall examine whether or not defective equipment gives cause for concern regarding the conformity of the products tested using the defective equipment. This examination shall be documented.

In case of any doubt regarding conformity of products, 5.5 applies.

After any repair calibration shall be repeated before the equipment is placed into use.

5.4.3 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 supplied (often referred to as supplier certified components or certified raw materials).

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.

5.4.4 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.

5.4.5 Product testing

5.4.5.1 General

Prior to placing a product on the market, the manufacturer shall ensure that initial type testing in accordance with Clause 6 is carried out.

prEN 13172:2010 (E)

The manufacturer shall test the finished products in accordance with the relevant product standard, using direct and/or indirect testing, in accordance with 5.4.5.3. One test is considered as the test(s) on one sample of the product using 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.

5.4.5.2 Direct testing

Direct testing shall be applied according to the test regime specified in the relevant product standard.

Reduced testing frequencies for direct testing may be used for well established production lines/units for properties other than reaction to fire and thermal resistance/conductivity:

- in the case of a given characteristic where a well controlled production process can be demonstrated, the testing frequency may be reduced as described below following the relevant statistical rule.
- the frequency for direct testing cannot be reduced to less than 10 % of the minimum frequency given in the relevant product standard. In no case may the frequency be less than once a year.
- the risk of failure in a test shall not exceed 1,0 %. For dimensional tolerances the confidence level shall be at least 99 %, for other characteristics the confidence level shall be at least 50%.

Three situations arise:

I) for characteristics with declared classes – tolerance interval, T (one-sided interval for dimensional characteristics where only a plus or a minus tolerance interval is declared and two-sided interval for e.g. dimensional characteristics where a plus-minus tolerance interval is declared).

<https://standards.iteh.ai/catalog/standards/sist/791afc80-1751-48cd-acf9-e099bc27f309/sist-13172-2010>

If the Gaussian distribution can be assumed for the test results, then Equation 1 applies.

$$T^2 \geq (k_{99/99} \times s)^2 \quad (1)$$

where

T is the tolerance interval for the test results obtained over a period not exceeding three years

s is the estimate of the standard deviation of the test results obtained over a period not exceeding three years;

k is a factor corresponding to the number of test results, n , available over a period not exceeding three years at the reduced testing frequency.

Table 2 gives the k factors corresponding to a 99 % tolerance interval with a confidence level of 99% (99/99).

II) for characteristics with limit values – one-sided tolerance interval

If the Gaussian distribution can be assumed for the test results, the equation 2 applies.

$$(x_D - \bar{x})^2 \geq (k_{90/50} \cdot s)^2 \quad (2)$$

where

\bar{x} – mean of the measured values

x_D - Declared value

s is the estimate of the standard deviation of the test results obtained over a period not exceeding three years;