



BSI Standards Publication

Sealants for non-structural use in joints in buildings and pedestrian walkways

Part 5: Assessment and verification of constancy of performance, marking and labelling

National foreword

This British Standard is the UK implementation of EN 15651-5:2017. It supersedes BS EN 15651-5:2012 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/547, Sealants for building and construction.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Sealants for non-structural use in joints in buildings and pedestrian walkways - Part 5: Assessment and verification of constancy of performance, marking and labelling

Mastics pour joints pour des usages non structuraux dans les constructions immobilières et pour chemins piétonniers - Partie 5 : Évaluation et vérification de la constance des performances, du marquage et de l'étiquetage

Fugendichtstoffe für nicht tragende Anwendungen in Gebäuden und Fußgängerwegen - Teil 5: Bewertung und Überprüfung der Leistungsbeständigkeit, Kennzeichnung und Etikettierung

This European Standard was approved by CEN on 25 December 2016.

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European foreword

This document (EN 15651-5:2017) has been prepared by Technical Committee CEN/TC 349 “Sealants for joints in building construction”, the secretariat of which is held by AFNOR.

This document supersedes EN 15651-5:2012.

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of an identical text or by endorsement, at the latest by September 2017, and conflicting national standards shall be withdrawn at the latest by December 2018.

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This document is a European Standard, which supports all product European Standards within the framework series of EN 15651 on *Sealants for non-structural use in joints in buildings and pedestrian walkways*, as follows:

- *Part 1: Sealants for facade elements,*
- *Part 2: Sealants for glazing,*
- *Part 3: Sealants for sanitary joints,*
- *Part 4: Sealants for pedestrian walkways,*
- *Part 5: Assessment and verification of constancy of performance, marking and labelling (this document).*

Part 5 has been revised in order to take into account the new terminology and concept of the Regulation (EU) No 305/2011.

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1 Scope

This European Standard specifies procedures for assessment and verification of constancy of performance, marking and labelling of sealants for non-structural joints in building construction and pedestrian walkways.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 6927, *Buildings and civil engineering works - Sealants - Vocabulary (ISO 6927)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 6927 and the following apply.

3.1

product

one-component sealant and multi-components sealants

3.2

batch

quantity of material made in a single operation, or in the case of continuous production for a defined quantity that is demonstrated by the manufacturer to have a uniform composition and does not exceed one day's production

3.3

identification test

test carried out to verify a declared value of the composition or property of the product in terms of consistency of the production

Note 1 to entry: This can be used to ensure that the product being tested under FPC corresponds to the product subjected to the product type determination, within the permitted tolerances.

3.4

performance test

test carried out to verify a value for a required property of the product in terms of its specified performance during application and use

Note 1 to entry: This is to ensure that the product conforms to its specified performance characteristics.

3.5

declared value

value declared and documented by the manufacturer for identification or performance requirements

3.6

threshold value

value given to guarantee a minimum product performance below which it could not be considered fit for a specific intended use

4 Sampling

4.1 General

Sampling shall be carried out in such a way that the resulting sample is homogeneous and representative of the batch or product to be inspected. Samples shall be clearly labelled to uniquely identify the source, location and time of sampling. The sample size shall be sufficient for all the required testing in accordance with the relevant test method standards.

A part of the sample shall be retained for future reference until the use by date.

4.2 Record

All information relevant to the sampling shall be recorded, including:

- a) date of manufacture and sampling,
- b) name of the sealant, type (chemical family) and colour,
- c) batch number which should include any unique internal identification, i.e. drum number, if appropriate,
- d) name of the manufacturer,
- e) quantity of batch or product represented by the sample,
- f) names of the persons responsible for sampling.

4.3 Frequency of sampling

Frequency of sampling shall be at least one per batch.

5 Assessment and verification of constancy of performance (AVCP)

5.1 General

The compliance of sealants for non-structural use in joints in buildings and pedestrian walkways with the requirements of this standard and with the performances declared by the manufacturer in the DoP shall be demonstrated by:

- determination of the product type
- factory production control by the manufacturer, including product assessment.

The manufacturer shall always retain the overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performance(s).

5.2 Type testing

5.2.1 General

All performances related to characteristics included in this standard shall be determined when the manufacturer intends to declare the respective performances unless the standard gives provisions for declaring them without performing tests. (e.g. use of previously existing data, CWFT (Classified Without Further Testing) and conventionally accepted performance).

Assessment previously performed in accordance with the provisions of this standard, may be taken into account provided that they were made to the same or a more rigorous test method, under the same AVCP system on the same product or products of similar design, construction and functionality, such that the results are applicable to the product in question.

NOTE 1 Same AVCP system means testing by an independent third party, under the responsibility of a notified product certification body.

For the purposes of assessment, the manufacturer's products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for that same characteristics for all products within that same family.

NOTE 2 Products may be grouped in different families for different characteristics.

Reference to the assessment method standards should be made to allow the selection of a suitable representative sample.

In addition, the determination of the product type shall be performed for all characteristics included in the standard for which the manufacturer declares the performance:

- at the beginning of the production of a new or modified sealant for non-structural use in joints in buildings and pedestrian walkways (unless a member of the same product range), or
- at the beginning of a new or modified method of production (where this may affect the stated properties); or

they shall be repeated for the appropriate characteristic(s), whenever a change occurs in the sealants for non-structural use in joints in buildings and pedestrian walkways design, in the raw material or in the supplier of the components, or in the method of production (subject to the definition of a family), which would affect significantly one or more of the characteristics.

Where components are used whose characteristics have already been determined, by the component manufacturer, on the basis of assessment methods of other product standards, these characteristics need not be re-assessed. The specifications of these components shall be documented.

Products bearing regulatory marking in accordance with appropriate harmonized European specifications may be presumed to have the performances declared in the DoP, although this does not replace the responsibility on the sealants for non-structural use in joints in buildings and pedestrian walkways manufacturer to ensure that the sealants for non-structural use in joints in buildings and pedestrian walkways as a whole is correctly manufactured and its component products have the declared performance values.

5.2.2 Test samples, testing and compliance criteria

The number of samples of sealants for non-structural use in joints in buildings and pedestrian walkways to be tested/assessed shall be in accordance with the product standards.

5.2.3 Test reports

The results of the determination of the product type shall be documented in test reports. All test reports shall be retained by the manufacturer for at least 10 years after the last date of production of the sealants for non-structural use in joints in buildings and pedestrian walkways to which they relate.

5.2.4 Shared other party results

A manufacturer may use the results of the product type determination obtained by someone else (e.g. by another manufacturer, as a common service to manufacturers, or by a product developer), to justify his own declaration of performance regarding a product that is manufactured according to the same design (e.g. dimensions) and with raw materials, constituents and manufacturing methods of the same kind, provided that:

- the results are known to be valid for products with the same essential characteristics relevant for the product performance;
- in addition to any information essential for confirming that the product has such same performances related to specific essential characteristics, the other party who has carried out the determination of the product type concerned or has had it carried out, has expressly accepted to transmit to the manufacturer the results and the test report to be used for the latter's product type determination, as well as information regarding production facilities and the production control process that can be taken into account for FPC;
- the manufacturer using other party results accepts to remain responsible for the product having the declared performances and he also:
 - ensures that the product has the same characteristics relevant for performance as the one that has been subjected to the determination of the product type, and that there are no significant differences with regard to production facilities and the production control process compared to that used for the product that was subjected to the determination of the product type; and
 - keeps available a copy of the determination of the product type report that also contains the information needed for verifying that the product is manufactured according to the same design and with raw materials, constituents and manufacturing methods of the same kind.

5.3 Factory production control (FPC)

5.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market comply with the declared performance of the essential characteristics.

The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

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.

This factory production control system documentation shall ensure a common understanding of the evaluation of the constancy of performance and enable the achievement of the required product performances and the effective operation of the production control system to be checked. Factory production control therefore brings together operational techniques and all measures allowing maintenance and control of the compliance of the product with the declared performances of the essential characteristics.

In case the manufacturer has used shared product type results, the FPC shall also include the appropriate documentation as foreseen in 5.2.4.

5.3.2 Requirements

5.3.2.1 General

The manufacturer is responsible for organizing the effective implementation of the FPC system in line with the content of this product standard. Tasks and responsibilities in the production control organization shall be documented and this documentation shall be kept up-to-date.

The responsibility, authority and the relationship between personnel that manages, performs or verifies work affecting product constancy, shall be defined. This applies in particular to personnel that need to initiate actions preventing product non-constancies from occurring, actions in case of non-constancies and to identify and register product constancy problems.

Personnel performing work affecting the constancy of performance of the product shall be competent on the basis of appropriate education, training, skills and experience for which records shall be maintained.

In each factory the manufacturer may delegate the action to a person having the necessary authority to:

- identify procedures to demonstrate constancy of performance of the product at appropriate stages;
- identify and record any instance of non-constancy;
- identify procedures to correct instances of non-constancy.

The manufacturer shall draw up and keep up-to-date documents defining the factory production control. The manufacturer's documentation and procedures should be appropriate to the product and manufacturing process. The FPC system should achieve an appropriate level of confidence in the constancy of performance of the product. This involves:

- a) the preparation of documented procedures and instructions relating to factory production control operations, in accordance with the requirements of the technical specification to which reference is made;
- b) the effective implementation of these procedures and instructions;
- c) the recording of these operations and their results;
- d) the use of these results to correct any deviations, repair the effects of such deviations, treat any resulting instances of non-conformity and, if necessary, revise the FPC to rectify the cause of non-constancy of performance.

Where subcontracting takes place, the manufacturer shall retain the overall control of the product and ensure that he receives all the information that is necessary to fulfill his responsibilities according to this European standard.

If the manufacturer has part of the product designed, manufactured, assembled, packed, processed and/or labelled by subcontracting, the FPC of the subcontractor may be taken into account, where appropriate for the product in question.

The manufacturer who subcontracts all of his activities may in no circumstances pass the above responsibilities on to a subcontractor.

NOTE Manufacturers having an FPC system, which complies with EN ISO 9001 standard and which addresses the provisions of the present European standard are considered as satisfying the FPC requirements of the Regulation (EU) No 305/2011.

5.3.2.2 Equipment

5.3.2.2.1 Testing

All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

5.3.2.2.2 Manufacturing

All equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the manufacturing process. Inspections and maintenance shall be carried out and recorded in accordance with the manufacturer's written procedures and the records retained for the period defined in the manufacturer's FPC procedures.

5.3.2.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their compliance. In case supplied kit components are used, the constancy of performance system of the component shall be that given in the appropriate harmonized technical specification for that component.

5.3.2.4 Traceability and marking

Individual products, product batches or packages shall be identifiable and traceable with regard to their production origin. The manufacturer shall have written procedures ensuring that processes related to affixing traceability codes and/or markings are inspected regularly.

5.3.2.5 Controls during manufacturing process

The manufacturer shall plan and carry out production under controlled conditions.

5.3.2.6 Product testing and evaluation

The manufacturer shall establish procedures to ensure that the stated values of the characteristics he declares are maintained.

5.3.2.7 Non-complying products

The manufacturer shall have written procedures which specify how non-complying products shall be dealt with. Any such events shall be recorded as they occur and these records shall be kept for the period defined in the manufacturer's written procedures.

Where the product fails to satisfy the acceptance criteria, the provisions for non-complying products shall apply, the necessary corrective action(s) shall immediately be taken and the products or batches not complying shall be isolated and properly identified.

Once the fault has been corrected, the test or verification in question shall be repeated.

The results of controls and tests shall be properly recorded. The product description, date of manufacture, test method adopted, test results and acceptance criteria shall be entered in the records under the signature of the person responsible for the control/test.

With regard to any control result not meeting the requirements of this European standard, the corrective measures taken to rectify the situation (e.g. a further test carried out, modification of manufacturing process, throwing away or putting right of product) shall be indicated in the records.

5.3.2.8 Corrective action

The manufacturer shall have documented procedures that instigate action to eliminate the cause of non-conformities in order to prevent recurrence.

5.3.2.9 Handling, storage and packaging

The manufacturer shall have procedures providing methods of product handling and shall provide suitable storage areas preventing damage or deterioration.

5.3.3 Product specific requirements

The FPC system shall address this European Standard and ensure that the products placed on the market comply with the declaration of performance.

The FPC system shall include a product specific FPC, which identifies procedures to demonstrate compliance of the product at appropriate stages, i.e.:

- a) the controls and tests to be carried out prior to and/or during manufacture according to a frequency laid down in the FPC test plan,

and/or
- b) the verifications and tests to be carried out on finished products according to a frequency laid down in the FPC test plan

If the manufacturer uses only finished products, the operations under b) shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

If the manufacturer carries out parts of the production himself, the operations under b) may be reduced and partly replaced by operations under a). Generally, the more parts of the production that are carried out by the manufacturer, the more operations under b) may be replaced by operations under a).

In any case the operation shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

NOTE: Depending on the specific case, it can be necessary to carry out the operations referred to under a) and b), only the operations under a) or only those under b).

The operations under a) refer to the intermediate states of the product as on manufacturing machines and their adjustment, and measuring equipment etc. These controls and tests and their frequency shall be chosen based on product type and composition, the manufacturing process and its complexity, the sensitivity of product features to variations in manufacturing parameters etc.

The manufacturer shall establish and maintain records that provide evidence that the production has been sampled and tested. These records shall show clearly whether the production has satisfied the defined acceptance criteria and shall be available for at least three years.

5.3.4 Initial inspection of factory and of FPC

Initial inspection of factory and of FPC shall be carried out when the production process has been finalized and in operation. The factory and FPC documentation shall be assessed to verify that the requirements of 5.3.2 and 5.3.3 are fulfilled.

During the inspection it shall be verified:

- a) that all resources necessary for the achievement of the product characteristics included in this European standard are in place and correctly implemented,

and

b) that the FPC-procedures in accordance with the FPC documentation are followed in practice,

and

c) that the product complies with the product type samples, for which compliance of the product performance to the DoP has been verified.

All locations where final assembly or at least final testing of the relevant product is performed, shall be assessed to verify that the above conditions a) to c) are in place and implemented. If the FPC system covers more than one product, production line or production process, and it is verified that the general requirements are fulfilled when assessing one product, production line or production process, then the assessment of the general requirements does not need to be repeated when assessing the FPC for another product, production line or production process.

All assessments and their results shall be documented in the initial inspection report.

5.3.5 Continuous surveillance of FPC

Surveillance of the FPC shall be undertaken in accordance with the product standards. The surveillance of the FPC shall include a review of the FPC test plan(s) and production processes(s) for each product to determine if any changes have been made since the last assessment or surveillance. The significance of any changes shall be assessed.

Checks shall be made to ensure that the test plans are still correctly implemented and that the production equipment is still correctly maintained and calibrated at appropriate time intervals.

The records of tests and measurement made during the production process and to finished products shall be reviewed to ensure that the values obtained still correspond with those values for the samples submitted to the determination of the product type and that the correct actions have been taken for non-compliant products.

5.3.6 Procedure for modifications

If modifications are made to the product, production process or FPC system that could affect any of the product characteristics declared according to this standard, then all the characteristics for which the manufacturer declares performance, which may be affected by the modification, shall be subject to the determination of the product type, as described in 5.2.1.

Where relevant, a re-assessment of the factory and of the FPC system shall be performed for those aspects, which may be affected by the modification.

All assessments and their results shall be documented in a report.

5.3.7 One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity

The sealants for non-structural use in joints in buildings and pedestrian walkways produced as a one-off, prototypes assessed before full production is established, and products produced in very low quantities shall be assessed as follows.

For type assessment, the provisions of 5.2.1, 3rd paragraph apply, together with the following additional provisions:

- in case of prototypes, the test samples shall be representative of the intended future production and shall be selected by the manufacturer;

- on request of the manufacturer, the results of the assessment of prototype samples may be included in a certificate or in test reports issued by the involved third party.

The FPC system of one-off products and products produced in very low quantities shall ensure that raw materials and/or components are sufficient for production of the product. The provisions on raw materials and/or components shall apply only where appropriate. The manufacturer shall maintain records allowing traceability of the product.

For prototypes, where the intention is to move to series production, the initial inspection of the factory and FPC shall be carried out before the production is already running and/or before the FPC is already in practice. The following shall be assessed:

- the FPC-documentation; and
- the factory.

In the initial assessment of the factory and FPC it shall be verified:

- a) that all resources necessary for the achievement of the product characteristics included in this European standard will be available, and
- b) that the FPC-procedures in accordance with the FPC-documentation will be implemented and followed in practice, and
- c) that procedures are in place to demonstrate that the factory production processes can produce a product complying with the requirements of this European standard and that the product will be the same as the samples used for the determination of the product type, for which compliance with this European standard has been verified.

Once series production is fully established, the provisions of 5.3 shall apply.

6 Marking and labelling

Products shall be clearly identified with the following information. When the material is supplied into a bulk container at the point of delivery, the same information shall be provided in writing at the time of delivery as follows:

- a) the name, address, trademark and any other means of identification of the manufacturer or his authorized representative established in the EEA, and place of production;
- b) the identification of the product, i.e. brand name, batch number;
- c) type of product and the number, date and reference to the relevant product European Standard within the framework series of EN 15651;
- d) a summary of storage requirements, including requirements on storage life, which shall be clearly marked, e.g. "This product shall not be taken to comply with EN 15651 after...";
- e) guidance for use including any particular precautions relating to its use, including any necessary safety precautions as required by local regulations.

Bibliography

EN ISO 9001, *Quality management systems - Requirements (ISO 9001)*

CEN/TR 17068:2017, *Sealants for non-structural use in joints in buildings and pedestrian walkways – Guidance for CE marking and Declaration of Performance (DoP)*

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