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Adhesives — Test methods for adhesives for plastic or rubber floor coverings or wall coverings — Determination of dimensional changes after accelerated ageing

Adhésifs — Méthodes d'essai des adhésifs pour revêtements de sol ou muraux en plastique ou en caoutchouc — Détermination des variations dimensionnelles après un vieillissement accéléré

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Adhesives — Test methods for adhesives for plastic or rubber floor coverings or wall coverings — Determination of dimensional changes after accelerated ageing

SAFETY PRECAUTIONS — Persons using this document should be familiar with the normal laboratory practice, if applicable. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

ENVIRONMENTAL STATEMENT — It is understood that some of the material permitted in this document may have negative environmental impact. As technological advantages lead to acceptable alternatives for these materials, they will be eliminated from this document to the extent possible. At the end of the test, it is essential that the user of this document take care to carry out an appropriate disposal of the wastes.

1 Scope

This document specifies a test method that measures the dimensional changes of a plastic or rubber floor or wall covering bonded to a given substrate after accelerated ageing. The term "wall covering" does not include any type of wallpaper.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 472, *Plastics — Vocabulary*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 9142, *Adhesives — Guide to the selection of standard laboratory ageing conditions for testing bonded joints*

ISO 15605, *Adhesives — Sampling*

EN 1067, *Adhesives — Examination and preparation of samples for testing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
covering
flexible resilient or textile floor covering or wall covering

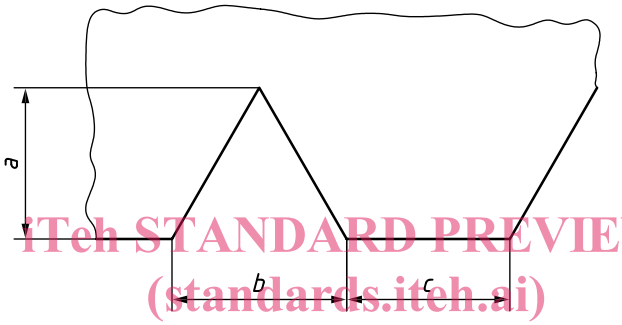
3.2
adhesive for coverings
adhesive which is intended to produce firm and durable bonds between *coverings* (3.1) and various substrates

4 Principle

This test method gives a measure of the suitability of a plastic or rubber floor or wall covering/adhesive combination by monitoring dimensional changes during defined conditioning sequences when bonded to a specific substrate.

5 Apparatus and materials

5.1 Notched trowel (for the shape of the notch, see Figure 1), with dimensions *a*, *b* and *c* specified by the adhesive manufacturer.



Key

a notch depth
b notch width
c notch distance

Figure 1 — Shape of notches of notched trowels

5.2 Roller, of width (60 ± 5) mm, diameter (90 ± 5) mm and total mass (3,50 ± 0,05) kg with a handle at 90° to the axis (as an example, see Figure 2).

Dimensions in millimetres

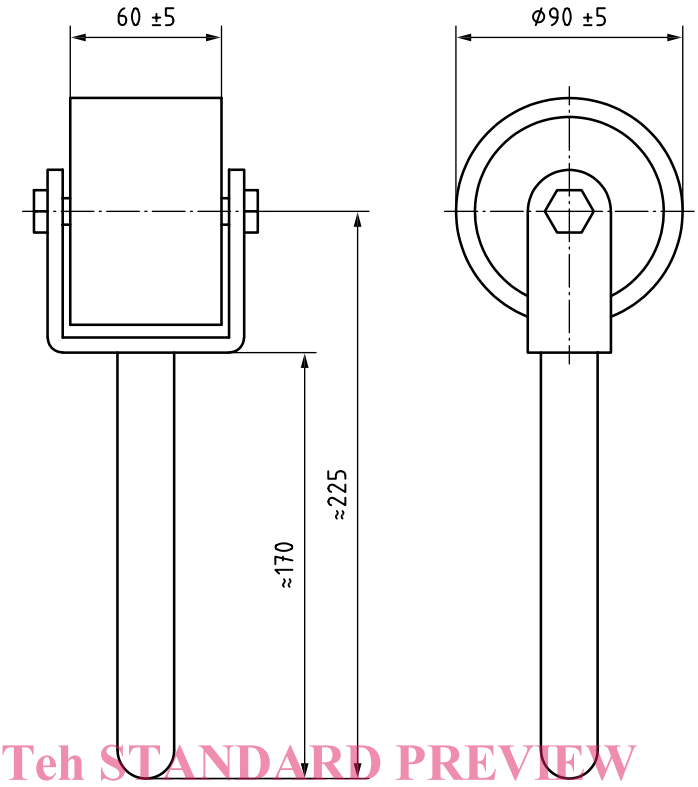


Figure 2 — Roller

NOTE The length of the handle is not critical and can be used for setting the total mass.

5.3 Heating chamber, ventilated and adjustable to a temperature between 20 °C and 200 °C according to ISO 9142.

5.4 Primer, if applicable.

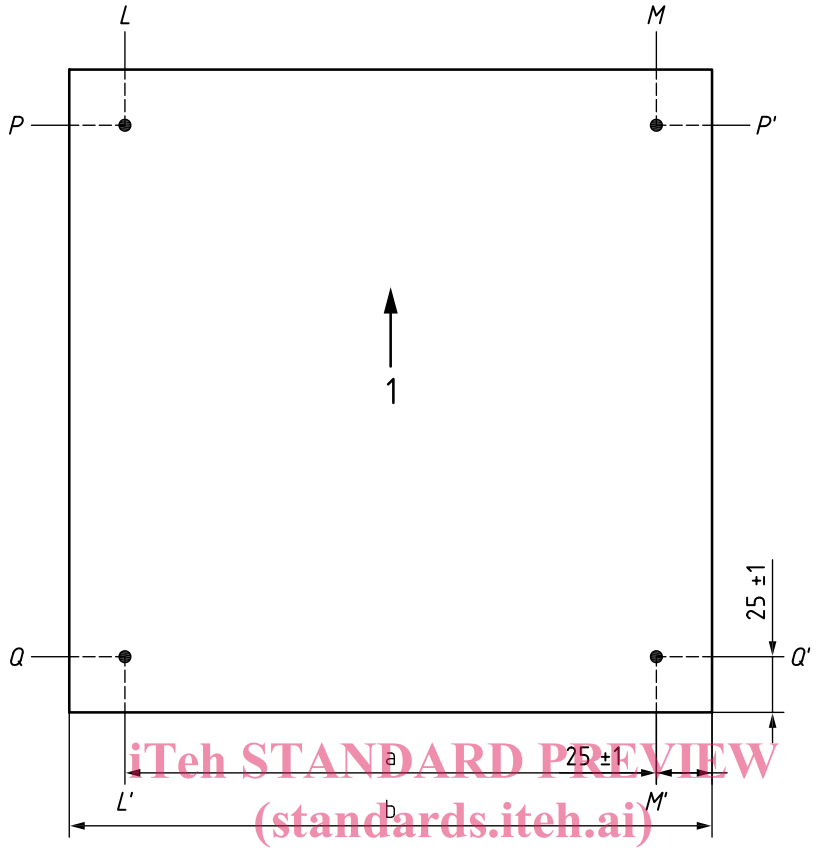
5.5 Test covering, three test pieces for each combination with adhesive dimensions of (250 ± 5) mm × (250 ± 5) mm or (300 ± 5) mm × (300 ± 5) mm.

5.6 Substrate, one uncoated fibre cement panel, fully compressed and autoclaved, of a minimum thickness of approximately 8,0 mm for each test piece. Dimensions shall not be greater than 50 mm longer than the distance between the datum points, i.e. each datum point shall not be greater than (25 ± 1) mm from the outer edge (see Figure 3).

NOTE The thickness is not critical.

Depending on the source of the fibre cement panels the surfaces can differ with respect to gloss, absorbency and strength. In this case, it is important to do some preliminary assessment (i.e. peel tests) of the panels to identify the preferred side for testing. The preferred side is referred to as the upper side of the substrate in this document.

Dimensions in millimetres



Key

1	grain direction
L, *M*,	starting points for dimension measurement parallel to the grain
L′, *M*′	end points for dimension measurement parallel to the grain
P, *Q*	starting points for dimension measurement perpendicular to the grain
P′, *Q*′	end points for dimension measurement perpendicular to the grain
a	Measurements between studs.
b	Edge to edge measurements.

Figure 3 — Measurements

Where edge to edge measurements are being carried out, recommended dimensions are approximately 300 mm × 300 mm.

5.7 Suitable measuring devices, capable of measuring to the nearest 0,01 mm over a length of either 200 mm or 250 mm, such as an elongation meter.

5.8 Adhesives, for fixing gauge studs to the covering surface if required by the measuring method.

6 Preparation of test specimens

6.1 Conditioning of fibre cement substrate

Place the test panels (5.6) in a heating chamber (5.3) for 6 h at (80 ± 2) °C. Ensure that the test panels are spaced in such a way as to enable a free passage of air over them. At the end of this period, remove

the test panels from the heating chamber (5.3) and store in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity for at least 48 h prior to use.

6.2 Conditioning of test covering

6.2.1 Room temperature storage

Condition all test pieces (5.5) in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity for at least 24 h prior to use.

6.2.2 Elevated temperature pre-treatment

Place the test pieces (5.5) on a firm horizontal substrate (5.6) and heat for 6 h in a heating chamber (5.3) at (80 ± 2) °C. Ensure that the test pieces and substrate are spaced in such a way as to enable a free passage of air over them. At the end of this period, remove the test pieces and supports from the heating chamber and store for 48 h in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity prior to use.

The pre-treatment will release any stresses in the covering so that it is in a relaxed state when the actual test is commenced. The pre-treatment of the test coverings may be run together with the conditioning of the substrate (6.1).

In most cases, a more practical assessment is required. Pre-conditioning of the floor or wall covering materials at elevated temperature may not be regarded as necessary. If knowledge of dimensional changes after this pre-treatment is required, dimensions should be measured as given in 6.5 before and after the pre-treatment.

6.3 Sampling and conditioning of adhesive

Take a sample in accordance with ISO 15605 of the adhesive to be tested and examine and prepare it in accordance with EN 1067.

Condition the adhesive in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity for at least 24 h before making the test specimens, in accordance with ISO 554.

6.4 Datum points

6.4.1 Fixing of gauge positions

Using the appropriate adhesive, fix the gauge studs in four positions, each being (25 ± 1) mm from the outer edge of the covering (see Figure 3).

6.4.2 Edge to edge measurements

Test specimens shall be marked at positions (25 ± 1) mm from each edge.

6.5 Initial measurements of dimensions prior to bonding

Measure the dimension of each test piece along the two datum lines LL′ and MM′ parallel to its grain, when this can be identified, (longitudinally) and the two datum lines PP′ and QQ′ at right angles to these lines (transversely). Record as measurement A.

Depending on the type of measuring device to be used, the measurements may be made from edge to edge or from scribe datum marks as described previously (see Figure 3).