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Elastic adhesives — Testing of adhesively bonded joints — Bead peel test

Adhésifs élastiques — Essai des assemblages collés — Essai de pelage sur cordon

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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.

Elastic adhesives — Testing of adhesively bonded joints — Bead peel test

1 Scope

This document specifies a method for evaluating the adhesion of elastic adhesives and sealants [with a minimum elongation at break of 100 % and a modulus of elasticity of maximum 10 MPa[1)]] on various substrates. In this way, the effect of various coatings or the surface pre-treatments of the substrate materials on the adhesion can be compared. It can also be used to evaluate the influence of pre-treatment, substrate and adhesive on the long-term durability of adhesively bonded joints and seals. This test can also be used for process monitoring and quality assurance accompanying production.

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 10365, *Adhesives — Designation of main failure patterns*

3 Terms and definitions

No terms and definitions are listed in this document.

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/

4 Principle

Adhesive beads are applied onto substrates. These are then peeled off again after curing and a possible subsequent climate resistance test. If an ageing is performed, the individual steps shall progress in succession with the test specimen, whereby a partial area is peeled off further before the ageing and after every ageing step. The failure pattern is then determined.

5 Sample preparation

5.1 Materials and surface treatment

The bonded joint materials and the surface treatment shall be selected according to the requirements of the application.

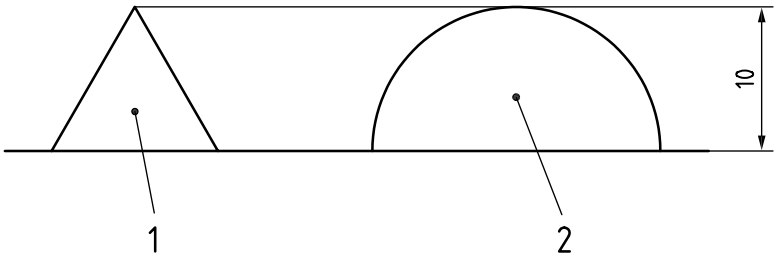
5.2 Adhesive application

For every test specimen, at least one adhesive bead with a length of minimum 80 mm, but with sufficient length for the number of intended ageing levels (each about 50 mm) shall be applied onto the jointing part.

1) The elongation and modulus of elasticity are measured according to ISO 527-2.

The bead geometry shall be defined corresponding to the later process. Alternatively, either semi-circular beads or triangular beads may be applied (see Figure 1).

Dimensions in millimetres



Key

1 triangular bead

2 semicircular bead

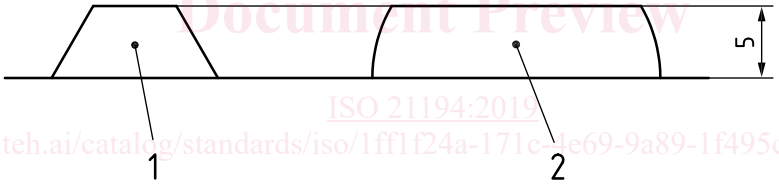
Figure 1 — Schematic representation of the adhesive application

In all cases, the height of the adhesive should be 5 mm. The adhesive component that extends over a height of 5 mm shall be removed (see Figure 2) or compacted to this height. The selected variant shall be listed in the test report (see Clause 9). Beads that are too high lead to falsified results during later peeling.

The width of the bead should be in a range between 10 mm and 15 mm.

During the application, it shall be ensured that the adhesive wets the substrate well.

Dimensions in millimetres



Key

1 triangular bead

2 semicircular bead

Figure 2 — Schematic representation of beads shortened to 5 mm height

6 Curing the adhesive

The curing or setting shall occur in accordance with the conditions specified for the adhesive or corresponding to the process conditions.

7 Ageing

The test specimens may be aged artificially to test the long-term resistance. The choice of ageing conditions shall correspond to the service conditions. Annex A describes, as an example, an ageing process that is often applied in practice. Also, ISO 9142 can be considered for suitable ageing regimes.