SLOVENSKI STANDARD
SIST EN ISO 22970:2021

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Barve in laki - Preskusna metoda za vrednotenje oprijema elastičnih lepil na premaze s preskusom luščenja, preskusom lepilne trdnosti in preskusom strižne trdnosti prekritih spojev z nategom pri dodatnem obremenjevanju s kondenzacijo ali vlažnim povijanjem (ISO 22970:2019)

Paints and varnishes - Test method for evaluation of adhesion of elastic adhesives on coatings by peel test, peel strength test and tensile lap-shear strength test with additional stress by condensation test or cataplasm storage (ISO 22970:2019)

Beschichtungsstoffe - Prüfverfahren zur Beurteilung der Haftfestigkeit von elastischen Klebstoffen auf Beschichtungen durch Prüfen der Schälhaftung, Schälfestigkeit und Zugscherfestigkeit mit zusätzlicher Beanspruchung durch Kondenswasserprüfung oder Kataplasmalagerung (ISO 22970:2019)

Peintures et vernis - Évaluation de l'adhérence des adhésifs élastiques sur les produits de peinture en examinant l'adhérence, la résistance au pelage et la résistance à la traction et le cisaillement en combinaison avec l'exposition à l'eau de condensation ou au cataplasme (ISO 22970:2019)

Ta slovenski standard je istoveten z: **EN ISO 22970:2020**

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87.040	Barve in laki	Paints and varnishes

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Paints and varnishes - Test method for evaluation of adhesion of elastic adhesives on coatings by peel test, peel strength test and tensile lap-shear strength test with additional stress by condensation test or cataplasm storage (ISO 22970:2019)

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This European Standard was approved by CEN on 30 November 2020.

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European foreword

The text of ISO 22970:2019 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 22970:2020 by Technical Committee CEN/TC 139 "Paints and varnishes" 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of an identical text or by endorsement, at the latest by June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

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Endorsement notice

The text of ISO 22970:2019 has been approved by CEN as EN ISO 22970:2020 without any modification.

INTERNATIONAL STANDARD

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Paints and varnishes — Test method for evaluation of adhesion of elastic adhesives on coatings by peel test, peel strength test and tensile lap-shear strength test with additional stress by condensation test or cataplasm storage

Peintures et vernis — Évaluation de l'adhérence des adhésifs élastiques sur les produits de peinture en examinant l'adhérence, la résistance au pelage et la résistance à la traction et le cisaillement en combinaison avec l'exposition à l'eau de condensation ou au cataplasme

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

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.

Paints and varnishes — Test method for evaluation of adhesion of elastic adhesives on coatings by peel test, peel strength test and tensile lap-shear strength test with additional stress by condensation test or cataplasm storage

1 Scope

This document specifies three methods for testing the peel adhesion, peel strength and tensile lap-shear strength in order to evaluate the adhesive bond as well as the type, location and structure of failures of elastic adhesives on coatings. These methods are used, for example, for testing the assembly with respect to the bond of panes or built-on parts, such as plastic covers, spoilers, instrument panel covers, headlights, with coatings for automobile construction. The two methods of climatic exposure of specimens described herein are the condensation test and cataplasm storage.

This document does not specify requirements for adhesives and coatings.

NOTE The peel strength test (method B) for rigid car body construction adhesives is described in ISO 8510-2. The tensile lap-shear strength test (method C) for rigid car body construction adhesives is described in EN 1465. Testing of rigid car body construction adhesives is generally conducted on small joint thicknesses, i.e. <1 mm.

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 3270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*

ISO 4618, *Paints and varnishes — Terms and definitions*

ISO 6270-2, *Paints and varnishes — Determination of resistance to humidity — Part 2: Condensation (in-cabinet exposure with heated water reservoir)*

ISO 10365, *Adhesives — Designation of main failure patterns*

ISO 17872, *Paints and varnishes — Guidelines for the introduction of scribe marks through coatings on metallic panels for corrosion testing*

DIN 55997, *Solvents for paints and varnishes — Deionized water — Requirements and methods of test*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 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
adhesive
non-metallic substance capable of joining materials by surface bonding (adhesion), where the bond possessing adequate internal strength for force transmission

3.2
adherend
body that is, or is intended to be, held to another body

Note 1 to entry: "Adherend" is a narrower term than "substrate".

[SOURCE: ISO 472:2013, 2.13]

3.3
tensile lap-shear strength
stressing in shear of an overlap specimen between rigid *adherends* (3.2) by applying to the adherends a tensile force which is parallel to the bond area and to the major axis of the specimen

3.4
cohesion failure
cohesive failure
failure of an adhesive bond within the body of the *adhesive* (3.1), i.e. not at the interface

[SOURCE: ISO 472:2013, 2.159]

3.5
adhesion failure
adhesive failure
failure of an adhesive bond in such a way that the separation appears to be at the adhesive/adherend interface

[SOURCE: ISO 472:2013, 2.30]

4 Principle

4.1 Adhesive strength test method A — Peel adhesion

It describes the peel adhesion test of adhesives on coatings. This method is suitable where a qualitative, i.e. visual, evaluation of an adhesive's behaviour is sufficient or when testing large and voluminous parts.

The adhesive is applied to the test panel in form of a (round or triangular) bead, dried and peeled off the coating using a cutter knife and, if required, pliers. This is followed by a visual evaluation of the failure pattern.

4.2 Adhesive strength test method B — Peel strength

It describes the adhesive strength testing of adhesives by determination of the peel force. This method enhances the range of results obtained using method A by additional quantitative measurement values and enables a statement as to which forces are transmitted to the adherend.

The adhesive is applied to the test panel to be bonded in form of a (round or triangular) bead, pressed to the required thickness using a suitable thin plate and cured. A tensile force is applied to the plate thereby peeling it off the bond in a defined angle. The reported result is the maximum force measured for each bond width (see Figure 20).