



SLOVENSKI STANDARD SIST EN 17271:2019

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Polimerni materiali - Profili na osnovi polivinilklorida (PVC) - Ugotavljanje trdnosti profilov, laminiranih s folijami

Plastics - Poly(vinyl chloride) (PVC) based profiles - Determination of the peel strength of profiles laminated with foils

Kunststoffe - Profile auf Basis von Polyvinylchlorid (PVC) - Bestimmung der Schälfestigkeit von mit Folien kaschierten Profilen

Plastiques - Profilés à base de poly(chlorure de vinyle) (PVC) - Détermination de la résistance au pelage de profilés avec des films plaxés

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Ta slovenski standard je istoveten z: **EN 17271:2019**

ICS:

83.080.20	Plastomeri	Thermoplastic materials
83.140.99	Drugi izdelki iz gume in polimernih materialov	Other rubber and plastics products

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EUROPEAN STANDARD

EN 17271

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2019

ICS 83.080.20; 83.140.99

English Version

Plastics - Poly(vinyl chloride) (PVC) based profiles - Determination of the peel strength of profiles laminated with foils

Plastiques - Profilés à base de poly(chlorure de vinyle)
(PVC) - Détermination de la résistance au pelage de
profilés avec des films plaxés

Kunststoffe - Profile auf Basis von Polyvinylchlorid
(PVC) - Bestimmung der Schälfestigkeit von mit Folien
kaschierten Profilen

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 17271:2019) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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

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EN 17271:2019 (E)**1 Scope**

This document specifies a test method for determining the peel strength of poly(vinyl chloride) (PVC) based profiles laminated with foils.

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.

EN ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system (ISO 7500-1)*

3 Terms and definitions

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

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

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

— ISO Online browsing platform: available at <http://www.iso.org/obp>

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3.1 profile

product produced by extrusion

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3.2 laminated profile

profile covered with a foil by means of adhesive

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3.3 base profile

profile without foil

3.4 assembly

<adhesives> group of materials or parts, including adhesive, which have been placed together for bonding or which have been bonded together

[SOURCE: EN ISO 10365:1995, 3.1 [1]]

3.5 peel off

separation of foil from the base profile which results in adhesion failure (3.6) or cohesion failure (3.7)

Note 1 to entry: Foil rupture is not considered as peel off.

3.6**adhesion failure**

rupture of an adhesive bond in which the separation appears visually to be at the adhesive/adherent interface

Note 1 to entry: See Figure 1.

[SOURCE: EN ISO 10365:1995, 3.2, modified — Note 1 to entry has been added [1]]

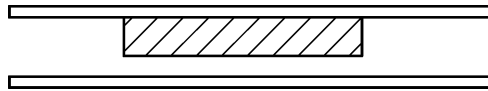


Figure 1 — Adhesion failure

3.7**cohesion failure**

rupture of a bonded assembly in which the separation appears visually to be in the adhesive or the adherend

Note 1 to entry: See Figure 2.

[SOURCE: EN ISO 10365:1995, 3.3, modified — Note 1 to entry has been added [1]]



Figure 2 — Cohesion failure

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3.8**peel strength**

force per unit width necessary to bring an adhesive joint to the point of failure or to maintain a rate of failure by means of a stress applied in the peel mode

Note 1 to entry: The peel strength can be expressed as force per unit peel width.

[SOURCE: EN ISO 472:2013, 2.683 [2]]

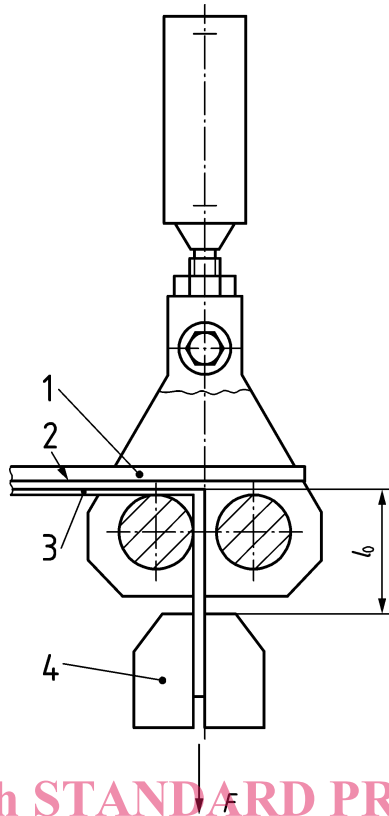
4 Principle

The peel strength of a profile laminated with a foil is determined by measuring the peel force perpendicularly to the surface of the profile, under specified conditions.

5 Apparatus and materials

5.1 Tensile testing machine, conforming to EN ISO 7500-1, class 1.

5.2 Peel strength device, capable of applying a force to the free end of a foil separated from a laminated profile, using a tensile testing machine, comprising two rolls as shown in Figure 3, or comparable device.



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Key

- 1 profile
- 2 adhesive
- 3 foil
- 4 Clamp
- F Force
- l_0 clamping distance

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Figure 3 — Clamping of (90°) peel test specimens

The length of the free path between the laminated sample and the clamping jaws (clamping distance l_0) shall be between 25 mm and 30 mm.

5.3 Masking tape, olefin- or PVC-based self-adhesive tape or siliconised-paper having a thickness of $\leq 80 \mu\text{m}$ and a width of ≥ 50 mm. Other materials may be used if they do not influence the test results, the masking tape shall not stick to the laminated foil.

In case that the masking tape cannot be removed from the laminated foil, due to the glue, this shall be mentioned in the test report.

NOTE: The masking tape is only needed for preparation of the test specimens according to 6.2 (not 6.3).

5.4 Cutting ruler (template), at least 100 mm long.

5.5 Cutter/blade, sharp enough to provide a clean cut in order to protect against fraying the edge of the foil.

6 Preparation of the test specimens

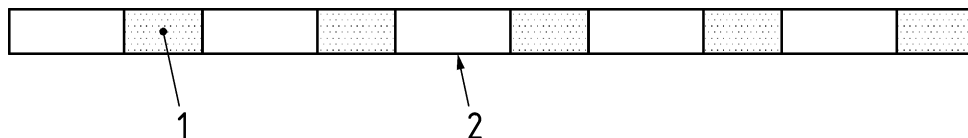
6.1 General

Prepare five test specimens according to one of the methods described below.

NOTE Method 1 is used when special sample preparation is applied. Method 2 is usually applied to ready-to-use profiles, when special sample preparation cannot be achieved.

6.2 Method 1

The masking tape is applied on the profile before or during the lamination in the traditional way, e.g. each 200 mm as indicated in Figure 4.



Key

- 1 profile section with masking tape
- 2 profile section without masking tape

Figure 4 — Example of test specimen preparation

Cut off the laminated surface of the laminated profile or use the laminated profile in full size.

Cut the separated laminated surface or laminated profile into sections of at least 150 mm long.

Place a template that is at least 100 mm × (20 ± 1) mm lengthways on the laminated surface in the middle of these sections.

Using a blade cut through the laminated foil along both longitudinal edges of the template to obtain specimens with a width of (20 ± 1) mm.

6.3 Method 2

Cut off the laminated surface of the laminated profile or use the laminated profile in full size.

Cut the separated laminated surface or laminated profile into sections of at least 100 mm long and 50 mm wide.

Place a template that is at least 100 mm × (20 ± 1) mm lengthways on the laminated surface in the middle of these sections.

Using a blade cut through the laminated foil along both longitudinal edges of the template to obtain specimens with a width of (20 ± 1) mm.

From the rear, mill the PVC profile wall in the middle of the specimen and across its longitudinal axis to a residual thickness of 0,1 mm to 0,2 mm. When generating this transfer line be careful not to cut into the PVC too deeply so as to avoid damaging the foil on the adhesive side.

Then mill away the entire back profile wall of the specimen in the longitudinal direction along the two cuts made along the template at a distance of 20 mm from one end of the specimen as far as the transverse line.

Break off the approximately 0,1 mm to 0,2 mm thick material by bending the milled strip of at least 50 mm × 20 mm in the direction of the specimen.