



SLOVENSKI STANDARD

SIST EN 13523-17:2005

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Coil coated metals - Test methods - Part 17: Adhesion of strippable films

Coil coated metals - Test methods - Part 17: Adhesion of strippable films

Bandbeschichtete Metalle - Prüfverfahren - Teil 17: Haftfestigkeit von abziehbaren Folien

Tôles prélaquées - Méthodes d'essai - Partie 17: Adhérence des films pelables

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ICS:

25.220.60 Organske prevleke Organic coatings

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13523-17

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English version

Coil coated metals - Test methods - Part 17: Adhesion of strippable films

Tôles prélaquées - Méthodes d'essai - Partie 17:
Adhérence des films pelables

Bandbeschichtete Metalle - Prüfverfahren - Teil 17:
Haftfestigkeit von abziehbaren Folien

This European Standard was approved by CEN on 23 September 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

EN 13523-17:2004 (E)**Foreword**

This document (EN 13523-17:2004) has been prepared 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 May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This part of EN 13523 describes two methods for determining the numerical evaluation of the adhesion of strippable films which have previously been applied to an organic coating on a metallic substrate.

Samples can be tested irrespective of whether the strippable film has been applied in the laboratory or on the production line.

NOTE Method 1 is preferred for films with adhesive and method 2 for films without adhesive.

2 Normative references

The following referenced documents are indispensable for the application 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 13523-0:2001, *Coil coated metals — Test methods — Part 0: General introduction and list of test methods*.

EN 23270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing (ISO 3270:1984)*.

3 Terms and definitions

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For the purposes of this document, the terms and definitions given in EN 13523-0:2001 and the following apply.

3.1 strippable film

a plastic film applied to the coated surface in order to afford a temporary protection against mechanical damage [EN 10169-1:2003]

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4 Principle

The force necessary to peel a film of given width from the surface of a coil coated material, at a defined angle and speed, is determined using appropriate instruments.

5 Apparatus

5.1 For method 1

5.1.1 Hydraulic or electronic dynamometer with

— a movable jaw speed of (300 ± 30) mm/min

— a traction meter set so that the force required to strip the film lies between 15 % and 85 % of the measuring scale (usually between 0 N and 10 N).

5.1.2 Cutting tool (e.g. a sharp knife)

5.1.3 Ruler

5.2 For method 2

5.2.1 Spring balance (cylinder dynamometer) with a scale of up to 10 N

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5.2.2 Cutting tool (e.g. a sharp knife)

5.3.3 Ruler

6 Sampling

See EN 13523-0.

7 Test panels

See EN 13523-0.

8 Procedure

8.1 Panel preparation

8.1.1 Self-adhesive strippable film

When self-adhesive strippable film is applied in the laboratory, observe the following requirements:

- a) Store the roll of film before use for a minimum of 24 h at ambient temperature and humidity. For more accurate measurements, as required for instance in case of dispute, the temperature shall be (23 ± 2) °C and relative humidity (50 ± 5) %, in accordance with EN 23270. Apply the film under these conditions.
- b) Apply the film to the surface of the test samples immediately after it has been uncoiled from the roll; take every care to avoid folds and blisters; press the film into place in the first instance by finger-tip pressure only.
- c) Use a cylindrical metal roller, rubber-covered to approximately 80° Shore, with a minimum diameter of 50 mm and a pressure of 2,0 N/mm width to press down the film, the metal roller being made to travel twice in a longitudinal direction over and back across the film surface; speed of travel shall be as close as practicable to 10 mm/s; no additional pressure may be exerted on the test panel surface.

Measure adhesion values (10 ± 1) min after the film has been applied.

Measure the adhesion of the strippable film at ambient conditions. For more accurate measurements, as required for instance in case of dispute, the temperature shall be (23 ± 2) °C and relative humidity (50 ± 5) % in accordance with EN 23270.

8.1.2 Non-adhesive strippable film

When non-adhesive strippable film is applied in the laboratory, heat the substrate before application to a temperature specified by the film supplier.

After application of the strippable film, cool down the sample in a way as close as possible to the production line conditions.

8.2 Determination

8.2.1 Method 1

Prepare five samples (in the rolling direction) 200 mm × 60 mm.

Cut through the strippable film with a cutting tool approximately 10 mm from, and parallel to, each long edge. Remove the film at the edges leaving approximately 40 mm of film along the centre of the samples.

Make five reference marks on each long edge of the samples at intervals of 30 mm, the first 50 mm from one end (end c). The marks shall be 5 mm long, neither touching nor damaging the film (see Figure 1).

Detach by hand not more than 25 mm of film from end *d* perpendicular to the surface of the sample.

Clamp the bared end (*c*) of the sample in one jaw of the dynamometer.

Lengthen the detached film (e.g. with reinforced adhesive tape), fold it back by 180 degrees and clamp in the other jaw so that the film surfaces are accurately aligned without touching.

Start the dynamometer at a speed of (300 ± 30 mm/min.) ensuring that the removed film moves parallel to, and does not touch, the film remaining on the sample (no friction between film surfaces).

At least 25 mm of film shall be detached before the first reference point is reached.

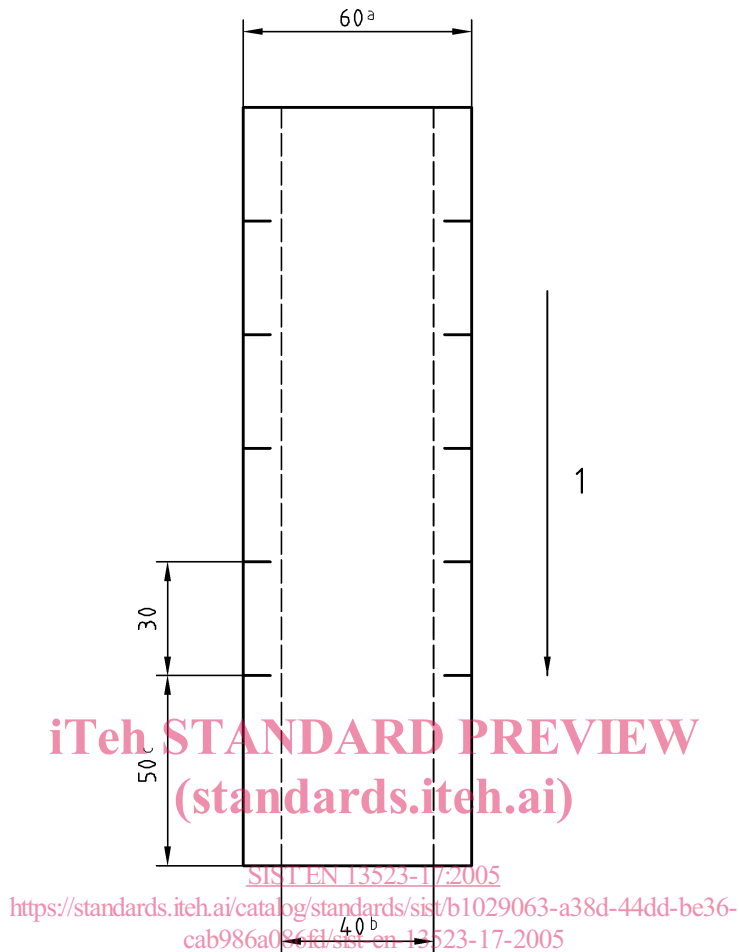
As the point of contact between film and sample reaches a reference point, the force indicated on the dynamometer scale shall be recorded. The result for the sample shall be the mean of the five measurements.

Carry out the test on all five samples.

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Dimensions in millimetres

**Key**

- 1 Rolling direction
- a Sheet
- b Film
- c First reference mark

Figure 1 — Position of the marks**8.2.2 Method 2**

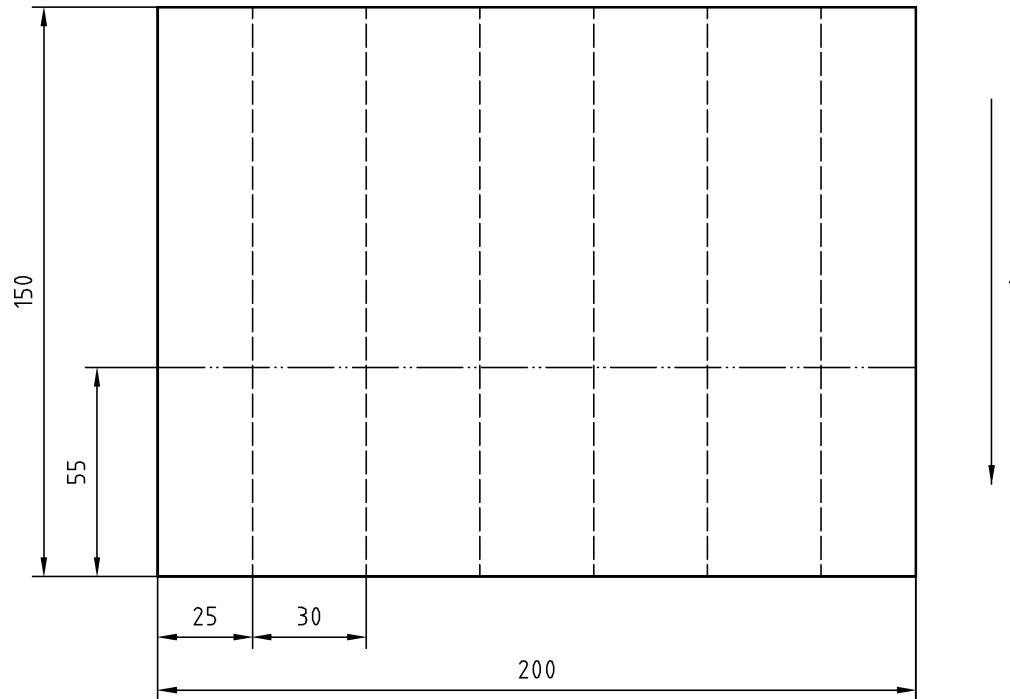
Prepare a sample (in the rolling direction) 150 mm × 200 mm.

Cut through the strippable film with a cutting tool approximately 25 mm from and parallel to a short edge. Make five further cuts parallel to the first cut at 30 mm intervals. Remove the film at both edges leaving five strips of 30 mm (see Figure 2).

Detach by hand not more than 55 mm of one end of the first strip of film.

Clamp the detached end of the film strip to the spring balance. Hold down the sample and peel off the film by raising the spring balance perpendicular to the sample surface at a constant speed so that a steady reading is obtained. Record the reading indicated on the spring balance.

Repeat the test on the remaining strips.



Key

- 1 Rolling direction

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Figure 2 — Position of the cuts

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8.3 Evaluation and expression of results

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Disregard the highest and lowest values. Calculate the arithmetic mean of the three remaining individual values. Record the result as the mean value, expressed in Newtons per millimetre width.

9 Precision

No precision data are available.

10 Test report

The test report shall contain at least the following information:

- all details necessary to identify the product tested;
- a reference to this part of EN 13523 (EN 13523-17);
- type of strippable film used;
- method used (method 1 or 2)
- result of the test, as indicated in 8.3;
- any deviation from the test method specified;
- date of the test.