SLOVENSKI STANDARD
SIST EN 29117:1997

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Barve in laki - Določanje utrjenega stanja in časa utrjevanja - Preskusna metoda (ISO 9117:1990)

Paints and varnishes - Determination of through-dry state and through-dry time - Method of test (ISO 9117:1990)

Lacke und Anstrichstoffe - Bestimmung des Durchtrocknungszustandes und der Durchtrocknungszeit - Prüfverfahren (ISO 9117:1990)

Peintures et vernis - Détermination du séchage a coeur et du temps de séchage a coeur - Méthode d'essai (ISO 9117:1990)

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87.040	Barve in laki	Paints and varnishes

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Paints and varnishes - Determination of through-dry state and through-dry time - Method of test (ISO 9117:1990)

Peintures et vernis - Détermination du séchage à coeur et du temps de séchage à coeur - Méthode d'essai (ISO 9117:1990)

Lacke und Anstrichstoffe - Bestimmung des Durchtrocknungszustandes und der Durchtrocknungszeit - Prüfverfahren (ISO 9117:1990)

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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FOREWORD

This European Standard is the endorsement of ISO 9117. Endorsement of ISO 9117 was recommended by CEN/Technical Committee 139 "Paints and varnishes" under whose competence this European Standard will henceforth fall.

National standards identical to this European Standard will be published at the latest by 93-01-31 and conflicting national standards shall be withdrawn at the latest by 93-01-31.

The Standard was approved and in accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard : Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

Endorsement notice

The text of the International Standard ISO 9117:1990 was approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 9117

First edition
1990-04-01

Paints and varnishes — Determination of through-dry state and through-dry time — Method of test

Peintures et vernis — Détermination du séchage à cœur et du temps de séchage à cœur — Méthode d'essai

Reference number
ISO 9117:1990(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9117 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

Annex A forms an integral part of this International Standard.

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Paints and varnishes — Determination of through-dry state and through-dry time — Method of test

1 Scope

This International Standard is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products.

It specifies a test method for determining under standard conditions whether a single coat or a multi-coat system of paint or related material has, after a specified drying period, reached the through-dry state, i.e. a pass/fail test. The test procedure may also be used to determine the time taken to achieve that state.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 48:1979, *Vulcanized rubbers — Determination of hardness (Hardness between 30 and 85 IRHD).*

ISO 1512:1974, *Paints and varnishes — Sampling.*

ISO 1513:1980, *Paints and varnishes — Examination and preparation of samples for testing.*

ISO 1514:1984, *Paints and varnishes — Standard panels for testing.*

ISO 2808:1974, *Paints and varnishes — Determination of film thickness.*

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

ISO 3678:1976, *Paints and varnishes — Print-free test.*

ISO 4622:1980, *Paints and varnishes — Pressure test for stackability.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 through-dry state: The condition of a film in which it is dry throughout its thickness as opposed to that condition in which the surface of the film is dry but the bulk of the coating is still mobile. For the purposes of this International Standard, a single coating or a multi-coat system of paint or varnish or related material is considered to be through-dry when a specified gauze under specified pressure, torsion and time does not mark or damage the film.

3.2 through-dry time: The period of time between the application of a coat to a prepared test panel and the achievement of the through-dry state, as determined by the specified test procedure.

4 Required supplementary information

For any particular application, the test method specified in this International Standard needs to be completed by supplementary information. The items of supplementary information are given in annex A.

5 Principle

Application, to a substrate, of a coat of agreed thickness which is allowed to dry under specified conditions. Determination of the completeness of drying throughout the coat by examination of the surface of the coat after the application of a load, applied over a given area of the surface, and subsequent rotation of the load-applying face through 90°.

6 Apparatus and materials

Ordinary laboratory apparatus and glassware together with the following:

6.1 Baseplate and plunger assembly (see figure 1 and figure 2), consisting essentially of a baseplate and a free-sliding plunger. The plunger head shall have a diameter of at least 25 mm. It shall be designed in such a way that the underside of the head can align itself with the upper surface of the test panel.

NOTE 1 If the mass of the plunger is not greater than 250 g, the apparatus described in ISO 4622 is suitable for the test.

A rubber disc (6.2) shall be attached to the centre of the underside of the plunger head using tape coated on both sides with adhesive. There shall be a device to firmly clamp a gauze (6.3) to the test face and the plunger head shall be able to be rotated through 90°.

NOTE 2 It is recommended that a ball-joint connection be present between the plunger and its head and that, for reasons of economy, the plunger specified in ISO 4622 be used.

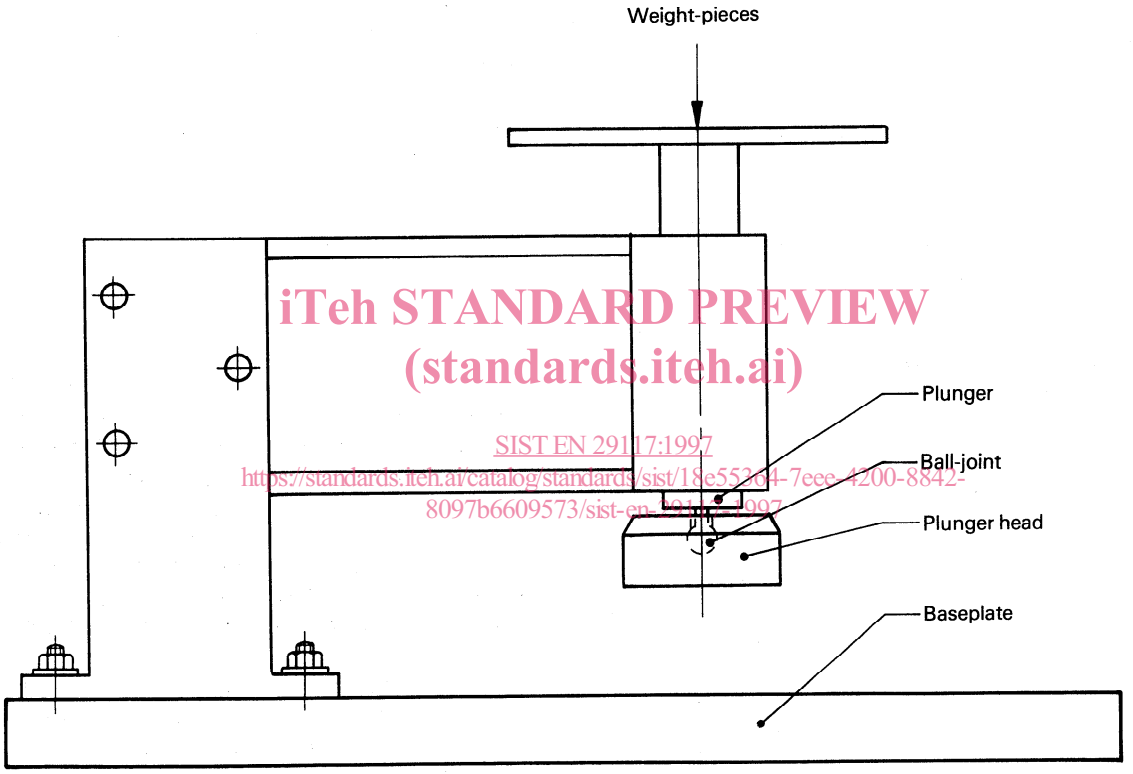

Figure 1 — Baseplate and plunger assembly

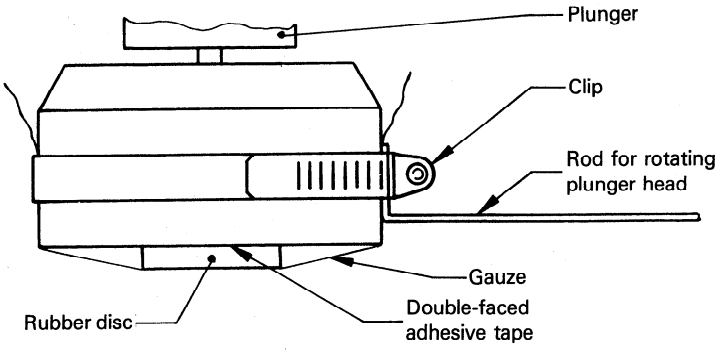

Figure 2 — Detail showing assembled plunger head

6.2 Flat rubber disc, of diameter 22 mm ± 1 mm, thickness 5 mm ± 0,5 mm and hardness 50 IRHD ± 5 IRHD[1)] (see ISO 48).

NOTE 3 It is recommended that, for reasons of economy, the rubber disc specified in ISO 3678 be used.

6.3 Gauze, of woven monofilament polyamide, minimum size 100 mm × 100 mm. The gauze thread diameter shall be 0,120 mm and the gauze aperture approximately 0,2 mm.

6.4 Weight-pieces, giving a total mass of 1 500 g ± 10 g.

6.5 Stopwatch, accurate to 0,1 s.

7 Sampling

Take a representative sample of the product to be tested (or of each product in the case of a multi-coat system), as described in ISO 1512.

Examine and prepare each sample for testing, as described in ISO 1513.

8 Test panels

8.1 Substrate

Select as the substrate one of the test panels described in ISO 1514 and, where possible, equivalent to the intended application [see annex A, item a)].

8.2 Preparation of coating

Prepare each test panel (see 8.1) in accordance with ISO 1514 and then coat it with the product or system under test by the specified method [see annex A, item b)] to the thickness specified for the dry film [see annex A, item c)].

9 Procedure

9.1 Preparation of apparatus

Clamp the gauze (6.3) over the rubber disc (6.2) under the plunger head (see figure 2), taking care to ensure that the exposed surface is free from creases. Take a fresh piece of gauze for each test.

9.2 Drying the test panel

Allow each coated test panel to dry in a vertical position with free circulation of air, but shielded from draughts and direct sunlight, at a temperature of 23 °C ± 2 °C and a relative humidity of (50 ± 5) %.

Stove and age stoving products under the specified conditions [see ISO 3270 and annex A, item d) for the test in 9.3 and annex A , item e) for the test in 9.4].

9.3 Determination of the through-dry state

9.3.1 At the completion of the specified period of drying [see annex A, item a)], place a test panel on the baseplate.

9.3.2 Place weight-pieces (6.4) with a total mass of 1 500 g ± 10 g on the top of the plunger. Gently lower the plunger so that the gauze is in contact with the test panel. Start the stopwatch (6.5) and allow the plunger to remain in this position for 10 s ± 1 s.

9.3.3 At the end of this period, turn the plunger head through an angle of 90° over a period of 2 s ± 0,5 s. Immediately raise the plunger, remove the test panel, and examine the coat in the test area using the naked eye, corrected if necessary.

9.3.4 Repeat the determination on two additional coated panels.

9.3.5 If no damage or marking is observed on any of the three test surfaces, report the result as "through-dry state achieved". If damage or marking is observed on one or more of the three test surfaces, report the result as "through-dry state not achieved".

Take care to avoid confusion between a cohesive failure within the coat (a failure under this test) and failure of the coat to adhere to the substrate (not a failure under this test).

9.4 Determination of through-dry time

9.4.1 On completion of the specified period of drying [see annex A, item e)], place a test panel on the baseplate.

9.4.2 At appropriate intervals [see annex A, item e)], carry out the test described in 9.3.2 and 9.3.3. Examine the coating in the test area for damage or marking. Stop the test when no damage occurs to the coat (see second paragraph of 9.3.5).

9.4.3 Repeat the determination on two additional coated panels.

9.4.4 Report the longest time taken in the three tests for the coat to reach the through-dry state.

1) International Rubber Hardness Degrees.