SRI LANKA STANDARD 1256: Part 30: 2010
ISO 9117-3 : 2010

METHODS OF TEST FOR
PAINTS AND VARNISHES
PART 30 : DETERMINATION OF SURFACE DRYING TIME USING BALLOTINI

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard

METHODS OF TEST FOR PAINTS AND VARNISHES
PART 30 : DETERMINATION OF SURFACE DRYING TIME USING BALLOTINI

SLS 1256: Part 30: 2010
ISO 9117-3 : 2010
(Superseding SLS 1256 : Part 12 : 2005
and SLS 535 : Part 3 : Section 3.4 : 1981)

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SRI LANKA.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

Sri Lanka Standard
METHODS OF TEST FOR PAINTS AND VARNISHES
PART 30 : DETERMINATION OF SURFACE DRYING TIME USING BALLOTINI

NATIONAL FOREWORD

This Sri Lanka Standard was approved by the Sectoral Committee on Chemical and Polymer Technology and authorized for adoption and publication as a Sri Lanka Standard by the council of the Sri Lanka Standards Institution on 2010-10-15.

This Standard is identical with ISO 9117-3 : 2010 Paints and varnishes – Drying tests- Part 3 : Surface-drying test using ballotini published by the International Organization for Standardization (ISO). This Standard supersedes SLS 1256 Part 12 : 2005, adoption of ISO 1517: 1973 as ISO 9117-3 : 2010 cancels and replaces ISO 1517 : 1973.

The text of the International Standard has been accepted as suitable for publication without deviation as a Sri Lanka Standard. However certain terminology and convention are not identical with those used in Sri Lanka Standards. Attention is therefore drawn to the following:

TERMINOLOGY AND CONVENTIONS

a) Wherever the words “International Standard” appear referring to a particular standard they should be interpreted as Sri Lanka Standard.

b) The comma has been used throughout as a decimal marker. In Sri Lanka Standards it is the current practice to use the full point at the base as the decimal marker.

c) Wherever page numbers are quoted they are ISO/IEC page numbers.

CROSS REFERENCES

International Standard	Corresponding Sri Lanka Standard
ISO 1513 Paints and varnishes- Examination and preparation of samples for testing	SLS 1256 Methods of test for paints and varnishes Part 1 Examination and preparation of samples for testing
ISO 1514 Paints and varnishes- Standard panels for testing	SLS 1256 Methods of test for paints and varnishes Part 11 Standard panels for testing
ISO 2808 Paints and varnishes - Determination of film thickness	SLS 1256 Methods of test for paints and varnishes Part 15 Determination of film thickness
ISO 15528 Paints, varnishes and raw materials for paints and varnishes -Sampling	SLS 523 Methods of sampling paints, varnishes and raw materials for paints and varnishes

SLS 1256-30: 2010

INTERNATIONAL STANDARD

ISO 9117-3

First edition
2010-03-01

Paints and varnishes — Drying tests —

Part 3: Surface-drying test using ballotini

Peintures et vernis — Essais de séchage —

Partie 3: Essai de séchage en surface à l'aide de billes de verre

Reference number
ISO 9117-3:2010(E)

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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

ISO 9117-3 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This first edition of ISO 9117-3 cancels and replaces ISO 1517:1973, which has been technically revised. The main changes are as follows:

a) the method has been integrated into the ISO 9117 series as Part 3, for determination of the drying of paints and varnishes;

b) a “principle” clause has been added;

c) text from the former introduction listing supplementary information has been integrated into the test report.

ISO 9117 consists of the following parts, under the general title *Paints and varnishes — Drying tests*:

— *Part 1: Determination of through-dry state and through-dry time*

— *Part 2: Pressure test for stackability*

— *Part 3: Surface-drying test using ballotini*

The following parts are under preparation:

— *Part 4: Test using a mechanical recorder*

— *Part 5: Modified Bandow-Wolff test*

INTERNATIONAL STANDARD **ISO 9117-3:2010(E)**

Paints and varnishes — Drying tests —

Part 3:
Surface-drying test using ballotini

1 Scope

This part of ISO 9117 specifies a test method for determining the surface-drying characteristics of a coating of a paint or varnish which dries by the action of air or by chemical reaction of its components.

The method is not intended to apply to stoving products.

The method described may be carried out:

— as a “go/no go” test, by determining the surface-drying state after a specified time, to assess compliance with a particular requirement;

— by determining the surface-drying state at suitable intervals until the surface-drying time is obtained.

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.

ISO 1513, *Paints and varnishes — Examination and preparation of test samples*

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

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

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

3 Terms and definitions

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

3.1
surface-drying state
condition of a surface of a coating of paint or varnish determining whether it is dry or not

3.2
surface-dry
state of a coating of paint or varnish when ballotini can be lightly brushed away without damaging the surface of the coating

3.3
surface-drying time
period of time between the application of a coating of paint or varnish to a prepared test panel and the assessment of the coating as just surface-dry by the test procedure specified

4 Principle

A coat of paint or varnish is applied to a substrate and is allowed to dry under specified conditions. The surface-drying state is determined by examination of the surface of the coat after small transparent glass spheres (ballotini) have been poured on to the surface of the coating and brushed away without damage to the surface.

5 Apparatus and materials

5.1 **Ballotini** (small transparent glass spheres).

The material shall be obtained by sieving from a grade of ballotini and shall be graded so that none pass a sieve of nominal size of openings 125 µm and all pass a sieve of nominal size of openings 250 µm.

5.2 **Brush**, soft-haired.

5.3 **Stopwatch**, accurate to 0,1 s.

5.4 **Balance**, accurate to 0,01 g.

6 Sampling

Take a representative sample of the product to be tested (or of each product in the case of a multi-coat system) in accordance with ISO 15528.

Examine and prepare each sample for testing in accordance with ISO 1513.

7 Test panels

7.1 Substrate

The test panel shall be of glass, burnished steel, burnished tinplate or burnished aluminium complying with the requirements of ISO 1514, and the surface shall be prepared for painting as specified therein.

7.2 Preparation and coating

7.2.1 If required, the test panel should be coated with the appropriate primer and/or undercoat, and allowed to dry for an agreed period before applying the product under test.

7.2.2 Coat the test panel with the product under test by the specified or agreed method of application.

7.3 Coating thickness

Determine the thickness, in micrometres, of the dry coating by one of the procedures specified in ISO 2808.

8 Procedure

8.1 Assessment of surface-drying state after a specified time

8.1.1 After the completion of the specified time, place the test panel in a horizontal position. The time has to be agreed between the interested parties.

8.1.2 Pour approximately 0,5 g of the ballotini (5.1) on to the surface of the coating from a height of not less than 50 mm and not more than 150 mm.

It is recommended that the ballotini be poured down a glass tube of appropriate length and with an internal diameter of approximately 25 mm, in order to avoid undue spreading of the ballotini and thus enable further tests to be made, if necessary, on other areas of the same panel.

8.1.3 After approximately 10 s, hold the panel at an angle of approximately 20° to the horizontal and brush the coating lightly.

8.1.4 Examine the surface of the coating visually. The coating is “surface-dry” if all the ballotini can be brushed away without damage to the surface. The areas within approximately 5 mm of the edges are not considered.

8.2 Determination of surface-drying time

Prepare a number of similar coated test panels as specified in Clause 7. At appropriate intervals, starting shortly before the coating is expected to be surface-dry and using a different panel for each test (or an untouched area of the same panel, if the tube described in the second paragraph of 8.1.2 is used), carry out the test as specified in 8.1 until the test shows the coating to be surface-dry. Record the time taken for the coating to become just surface-dry.

9 Precision

No precision data are currently available.

10 Test report

The test report shall include at least the following information:

a) all details necessary to identify the product under test;

b) a reference to this part of ISO 9117 (ISO 9117-3:2010);

c) details of the preparation of the test panels, including

   1) the material and surface preparation of the substrate (see 7.1),

   2) the method of application of the test coating to the substrate, including duration and conditions of drying between coats in the case of a multi-coat system (see 7.2),

   3) the thickness, in micrometres, of the dry coating and method of measurement in accordance with ISO 2808, and whether it is a single coat or a multi-coat system (see 7.3),

   4) the drying time (see 8.1.1);

d) the result of the test, reporting, as required:

   — whether the coating was “surface-dry” after the specified time,

   — the “surface-drying time”;

e) any unusual features (anomalies) observed during the test;

f) any deviation from the test procedure specified;

g) the date of the test.

ICS 87.040
Price based on 4 pages

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Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

Printed at SLSI (Printing Unit)

SRI LANKA STANDARDS INSTITUTION

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

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The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

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