SRI LANKA STANDARD 1256 : Part 38 : 2017
(ISO 3248:2016)
UDC 667.6

METHOD OF TEST FOR
PAINTS AND VARNISHES
PART 38: DETERMINATION OF THE EFFECT OF HEAT

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard
METHOD OF TEST FOR PAINTS AND VARNISHES
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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
METHOD OF TEST FOR PAINTS AND VARNISHES
PART 38: DETERMINATION OF THE EFFECT OF HEAT

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 2017-05-04

The text of the International Standard ISO 3248 : 2016 Paints and varnishes – Determination of the effect of heat has been accepted for adoption as SLS 1256 : Part 38: 2017

This Sri Lanka Standard is identical with ISO 3248: 2016 Paints and varnishes – Determination of the effect of heat published by the International Organization for Standardization (ISO).

TERMINOLOGY AND CONVENTIONS

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

a) Wherever the words “International Standard” appear referring to a particular Standards 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 page numbers.

Cross References

International Standard	Corresponding Sri Lanka Standard
ISO 1513, Paints and varnishes — Examination and preparation of test samples	SLS 1256 : Part 1: Examination and preparation of samples for testing
ISO 1514, Paints and varnishes — Standard panels for testing	No corresponding Sri Lanka Standard
ISO 1519, Paints and varnishes — Bend test (cylindrical mandrel)	SLS 1256 : Part 29: bend test (cylindrical mandrel) (first revision)
ISO 1520, Paints and varnishes — Cupping test	No corresponding Sri Lanka Standard
ISO 2808, Paints and varnishes — Determination of film thickness	SLS 1256 : Part 15: Determination of film thickness
ISO 3270, Paints and varnishes and their raw materials — Temperature and humidities for conditioning and testing	No corresponding Sri Lanka Standard
ISO 15528, Paints, varnishes and raw materials for paints and varnishes — Sampling	SLS 523 Methods of sampling for paints, varnishes and raw materials for paints and varnishes
ISO 6272-1, Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 1: Falling-weight test, large-area indenter	SLS 1256: Part 34 : Determination of rapid deformation ,falling weight test-large area indenter

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SLS 1256-38:2017

INTERNATIONAL STANDARD

ISO 3248

Third edition
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Paints and varnishes — Determination of the effect of heat

Peintures et vernis — Détermination des effets de la chaleur

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This third edition cancels and replaces the second edition (ISO 3248:1998), which has been technically revised with the following changes:

a) cooling down of the test panels after the test has been changed from standard temperature to ambient temperature;

b) a principle clause has been added;

c) the normative references have been updated;

d) the supplementary test conditions previously in Annex A have been integrated in the test report.

INTERNATIONAL STANDARD **ISO 3248:2016(E)**

Paints and varnishes — Determination of the effect of heat

1 Scope

This International Standard specifies a method for determining the resistance of single coatings or multi-coat systems of paints, varnishes or related products to changes in gloss and/or colour, blistering, cracking and/or detachment from the substrate under conditions of a specified temperature.

This procedure is applicable to products intended for use on domestic radiators or other articles likely to be subjected to similar temperatures.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 1518-1, *Paints and varnishes — Determination of scratch resistance — Part 1: Constant-loading method*

ISO 1519, *Paints and varnishes — Bend test (cylindrical mandrel)*

ISO 1520, *Paints and varnishes — Cupping test*

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

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

ISO 6272-1, *Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 1: Falling-weight test, large-area indenter*

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

3 Principle

The panels are placed in an oven at a specified temperature for a specified time. At the end of the specified time, the panels are removed from the oven, cooled to ambient temperature and examined for change of colour or signs of other deterioration of the coating, by comparison with identically prepared, but unheated, panels.

When specified, both heated and unheated panels are subjected to tests for e.g. scratch resistance, bending with cylindrical mandrel, cupping, falling weight, or to other agreed test procedures and examined for compliance with a specified requirement.

4 Limitations

Temperature and humidity are important parameters affecting test results. Deviations from the requirements specified can lead to results that are not comparable. However, the interested parties may agree upon alternative parameters and these parameters shall be reported.

5 Sampling

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

Examine and prepare the sample for testing, as specified in ISO 1513.

6 Test panels

6.1 Substrate

The test panel shall be of steel, tinplate, aluminium or glass as appropriate and shall comply with the requirements of ISO 1514. The dimensions of the panels shall be 150 mm × 100 mm.

6.2 Preparation and coating

Prepare each test panel in accordance with ISO 1514 and then coat it by the specified method with the product or system under test.

6.3 Drying and conditioning

Dry (or stove) and age, if applicable, each coated test panel for the specified time and under the specified conditions. Before testing, condition the coated panels at (23 ± 2) °C and a relative humidity of (50 ± 5) % (as specified in ISO 3270), for a minimum period of 16 h. The test procedure shall then be carried out as soon as possible.

6.4 Thickness of coating

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

7 Procedure

7.1 Temperature and duration of the test

Carry out the test procedure at (125 ± 2) °C for a period of 24 h, unless otherwise agreed.

7.2 Determination

Place the panels in an oven with air circulation at the specified temperature, not less than 100 mm from the sides of the oven and not closer than 20 mm apart, and maintain them at that temperature for the specified time. The preferred method for ensuring even heating of the coated panels is to suspend them by means of fine wires. Alternatively, the panels may be supported in a rack made from sustainable heat-resistant material or placed, paint side uppermost, on a piece of heat-resistant board resting on supports.

At the end of the specified time, remove the panels from the oven and allow them to cool to ambient temperature. Examine the panels for change of colour or signs of other deterioration of the coating, by comparison with identically prepared, but unheated, panels.

When specified, subject both heated and unheated panels, not less than 16 h after completing the heating period, to one of the test procedures specified in ISO 1518-1, ISO 1519, ISO 1520 or ISO 6272-1, or to other agreed test procedures, and examine for compliance with the specified requirement.

8 Precision

No relevant precision data are currently available.

9 Test report

The test report shall contain at least the following information:

a) all details necessary to identify the product(s) tested;

b) a reference to this International Standard, i.e. ISO 3248:2016;

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

   1) the material, the thickness and the surface preparation of the substrate (see 6.1);

   2) the method of application of the coating material to the substrate, including the duration and conditions of drying between coats in the case of a multi-coat system (see 6.2);

   3) the duration and conditions of drying (or stoving) and ageing (if applicable) of the coating before testing (see 6.3);

   4) the thickness, in micrometres, of the dry coating and the method of measurement used in ISO 2808, and whether it is a single coating or a multi-coat system (see 6.4);

d) the properties of the test coating which are to be considered in evaluating the resistance of the coating;

e) the results of the test, in terms of the stated requirements;

f) any deviation from the test method specified;

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

h) the date of the test.

ICS 87.040
Price based on 3 pages

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

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.*

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SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science, Technology and Research.

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 and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and Administrative control is vested in a Council appointed in accordance with the provisions of the Act.

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 return 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.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution Endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of Standardization as are of special interest to Sri Lanka.

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