

International Standard



7254

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Paints and varnishes — Assessment of natural spreading rate — Brush application

Peintures et vernis — Évaluation du rendement d'application normal (naturel) — Application à la brosse

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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. Every 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7254 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

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Paints and varnishes — Assessment of natural spreading rate — Brush application

0 Introduction

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

For any particular application, the method of test described in this International Standard needs to be completed by the following supplementary information. This information should be derived in part or totally from an (inter)national standard or other document related to the product under test or, if appropriate, should be agreed between the interested parties.

- a) Material, thickness and surface preparation of the substrate.
- b) The method of expressing the natural spreading rate (see clause 3).
- c) The attitude of the test surface, i.e. whether horizontal or vertical.
- d) The temperature of application of the paint or varnish.

1 Scope and field of application

1.1 This International Standard describes a method for assessing the natural spreading rate of application of a product (in terms of area per wet film mass or area per wet film volume, as appropriate) when applied by brush to test panels.

1.2 The method is not suitable for products that contain highly volatile solvents.

NOTE — The results are dependent on the type and nature of the substrate. Although consistent results may be obtained by one operator, care should be taken if results between operators and between laboratories are to be compared. In such circumstances, the use of a common reference product is recommended.

2 References

ISO 1512, *Paints and varnishes — Sampling*.

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

ISO 1514, *Paints and varnishes — Standard panels for testing*.¹⁾

1) At present at the stage of draft. (Revision of ISO 1514-1974.)

ISO 2811, *Paints and varnishes — Determination of density*.

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

3 Definition

For the purpose of this International Standard, the following definition applies :

natural spreading rate : The average area per wet film mass or the average area per wet film volume when applied uniformly by a skilled operator using a brush to give a film free from runs, sags and tears.

NOTE — The natural spreading rate is expressed either in m²/kg (area per mass) or m²/l (area per volume).

4 Apparatus

4.1 Brush, of good quality hog bristle or nylon monofilament, about 50 mm wide.

A new brush should not be used for the preparation of test panels, but one that has been conditioned by previous use.

4.2 Balance, accurate to 10 mg.

5 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 the sample for testing as described in ISO 1513.

6 Test panels

Unless otherwise specified, the test panels shall comply with, and shall be prepared as described in, ISO 1514.

Unless otherwise specified the test panels shall be rectangular with sides 300 mm × 600 mm.

NOTE — Because of the practical difficulty in accurately weighing the mass of product applied, the area of the test panel should be not less than 0,1 m².

7 Procedure

7.1 Conditions of application

For referee purposes and unless otherwise agreed, application shall be carried out in duplicate at 23 ± 2 °C and a relative humidity of 50 ± 5 %. See also ISO 3270.

7.2 Surface area

Measure the linear dimensions of the test panel to an accuracy of 1 % and determine the surface area of the face to be painted.

7.3 Assessment of spreading rate from wet film mass

7.3.1 Condition the brush (4.1) by applying some of the product under test to a clean surface, working the product well into the bristles. Immediately weigh, to the nearest 10 mg, a container holding the conditioned brush and sufficient wet product to coat the test panel.

7.3.2 Apply the product to the panel as quickly as possible to give a film free from sags, runs or other defects.

7.3.3 Reweigh the brush and container.

7.3.4 Calculate the natural spreading rate (area per wet film mass) of the product from equation (1).

$$S_{N(m)} = \frac{1\,000 \times A}{m_1 - m_2} \quad \dots (1)$$

where

A is the area, in square metres, of the test panel;

m_1 is the mass, in grams, of the container, brush and product, before application;

m_2 is the mass, in grams, of the container, brush and product, after application;

$S_{N(m)}$ is the natural spreading rate, in square metres per kilogram.

7.4 Assessment of spreading rate from wet film volume

7.4.1 Determine the density of the product by the method described in ISO 2811.

7.4.2 Carry out the procedure described in 7.3.1 to 7.3.3.

7.4.3 Calculate the natural spreading rate (area per wet film volume) of the product from equation (2).

$$S_{N(V)} = \frac{1\,000 \times A \times \rho}{m_1 - m_2} \quad \dots (2)$$

where

A is the area, in square metres, of the test panel;

ρ is the density, in grams per millilitre, of the product;

m_1 is the mass, in grams, of the container, brush and product, before application;

m_2 is the mass, in grams, of the container, brush and product, after application;

$S_{N(V)}$ is the natural spreading rate, in square metres per litre.

8 Report

ISO 7254:1984

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The report shall contain at least the following information :

- the type and identification of the product applied;
- a reference to this International Standard (ISO 7254);
- the items of supplementary information referred to in the introduction to this International Standard;
- a reference to the (inter)national standard, product specification or other document supplying the information referred to in c) above;
- the results in terms of the stated requirements;
- any deviation, by agreement or otherwise, from the procedure specified;
- the date of the application of the product.