International Standard

ISO 7877

Paints and varnishes — Coating of test panels at a specified spreading rate — Brush application

Peintures et vernis — Peinturage des panneaux d'essai à un rendement en surface spécifié — 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 7877 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

Paints and varnishes — Coating of test panels at a specified 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 described in this International Standard needs to be completed by the following supplementary information. This information should be derived, in part or totally, from the (inter)national standard or other document related to the product to be applied or, if appropriate, should be agreed between the interested parties.

a)   Material, thickness and surface preparation of the substrate.

b)   The specified spreading rate of the wet film to be applied, either in terms of area per wet film mass or of area per wet film volume, including the limits if appropriate.

c)   Conditions of application, if other than those specified (see 6.1).

1 Scope and field of application

1.1   This International Standard describes a procedure for preparing coated test panels by brush application of a product at a specified spreading rate based either on the mass or the volume of the product used.

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

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)]

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 Apparatus

3.1   **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.

3.2   **Balance**, accurate to 10 mg.

4 Sampling

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

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

5 Test panels

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

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 m^2.

6 Procedure

6.1 Conditions of application

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

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

6.2 Surface area

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

6.3 Spreading rate, calculated from wet film mass

6.3.1 Calculate the mass of product required to coat the face of the test panel (clause 5) at the specified spreading rate from equation (1).

$$m = \frac{1\ 000 \times A}{S_m} \qquad \ldots (1)$$

where

m is the mass, in grams, of the product to be applied;

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

S_m is the specified spreading rate, in square metres per kilogram.

NOTE — If the specified spreading rate is given as a range, it is necessary to calculate the masses corresponding to the extremes of this range.

6.3.2 Condition the brush 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 as calculated above.

6.3.3 Coat the panel with the product as quickly as possible at what is assessed to be the specified spreading rate.

6.3.4 Reweigh the brush and container.

6.3.5 Calculate the actual spreading rate (wet film mass) of the product from equation (2).

$$S_{A(m)} = \frac{1\ 000 \times A}{m_1 - m_2} \qquad \ldots (2)$$

where

A is the spreading 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;

$S_{A(m)}$ is the actual spreading rate, in square metres per kilogram;

6.4 Spreading rate, calculated from wet film volume

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

6.4.2 Calculate the mass of product required to coat the face area of the test panel (clause 5) at the specified spreading rate from equation (3).

$$m = \frac{1\ 000 \times A \times \varrho}{S_V} \qquad \ldots (3)$$

where

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

S_V is the specified spreading rate, in square metres per litre.

NOTE — If the specified spreading rate is given as a range, it is necessary to calculate the masses corresponding to the extremes of this range.

6.4.3 Carry out the procedure described in 6.3.2 and 6.3.3 ensuring that the container holds sufficient wet product to coat the test panel as calculated from equation (3).

6.4.4 Reweigh the brush and container.

6.4.5 Calculate the actual spreading rate (wet film volume) of the product from equation (4).

$$S_{A(V)} = \frac{1\ 000 \times A \times \varrho}{m_1 - m_2} \qquad \ldots (4)$$

where

A is the surface 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;

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

6.4.6 If a volume procedure is preferred, calculate the volume required to the nearest 0,1 ml from equation (5) :

$$V = \frac{1\ 000 \times A}{S_V} \qquad \ldots (5)$$