INTERNATIONAL STANDARD

ISO 16482-1

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Binders for paints and varnishes — Determination of the non-volatile-matter content of aqueous rosin-resin dispersions —

Part 1: Oven method

Liants pour peintures et vernis — Détermination de la teneur en matières non volatiles des dispersions aqueuses de résine colophane —

Partie 1: Méthode à l'étuve

Reference number
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Foreword

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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 16482-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*.

ISO 16482 consists of the following parts, under the general title *Binders for paints and varnishes — Determination of the non-volatile matter content of aqueous rosin-resin dispersions*:

— *Part 1: Oven method*

— *Part 2: Microwave method*

Binders for paints and varnishes — Determination of the non-volatile-matter content of aqueous rosin-resin dispersions —

Part 1: Oven method

1 Scope

This part of ISO 16482 specifies a method for determining the non-volatile content, by mass, of aqueous rosin-resin dispersions, using an oven.

This method is applicable to resin dispersions having a softening point from 60 °C to 100 °C, measured in accordance with ISO 4625-1 (ring-and-ball method).

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 4625-1, *Binders for paints and varnishes — Determination of softening point — Part 1: Ring-and-ball method*

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
non-volatile matter
NV
residue by mass obtained by evaporation under specified conditions

[SOURCE: ISO 4618:2006]

4 Principle

The water in a resin dispersion is evaporated at 135 °C. The mass of the residue is determined.

5 Apparatus

5.1 Analytical balance, accurate to 0,000 1 g.

5.2 Aluminium dishes, having a diameter of (45 ± 5) mm at the bottom. The height of the rim shall be not more than 40 mm.

5.3 Non-convection oven, capable of being maintained at (135 ± 3) °C.

5.4 **Convection oven**, capable of being maintained at about 160 °C.

6 Reagents

6.1 **Toluene**, chemically pure grade.

6.2 **Acetone**, chemically pure grade.

7 Sampling

Take a representative sample of the resin dispersion as described in ISO 15528.

8 Procedure

Carry out the determination in triplicate.

Use clean aluminium dishes (5.2). If the dishes need to be cleaned, wash them first with toluene (6.1) and then with acetone (6.2). Let the dishes dry in a fume cupboard until they are solvent free. Then keep them in the convection oven (5.4) maintained at 160 °C for at least 24 h. For each sample tested, take three dried dishes from the oven and let them cool to room temperature.

Weigh 2,000 g of the dispersion, to the nearest 0,000 1 g, into a pre-weighed aluminium dish.

Place the dishes for at least 45 min in the non-convection oven (5.3) until a constant or stabilized weight has been reached at 135 °C.

After 45 min, remove the dishes and allow them to cool to room temperature.

Weigh the cooled dishes to the nearest 0,000 1 g.

9 Expression of results

Calculate the non-volatile-matter content, NV, expressed as a percentage by mass, from the loss in mass, using Formula (1):

$$\mathrm{NV} = \frac{(m_2 - m_0)}{(m_1 - m_0)} \times 100 \qquad (1)$$

where

m_0 is the mass, in grams, of the empty dish;

m_1 is the mass, in grams, of the dish plus test portion;

m_2 is the mass, in grams, of the dish plus residue.

Calculate the mean of three valid results (triplicates) and report the result to one decimal place.

10 Test report

The test report shall contain at least the following information:

a) all details necessary for complete identification of the product tested (manufacturer, trade name, batch number, etc.);

b) a reference to this part of ISO 16482 (i.e. ISO 16482-1);

c) the result of the test, as indicated in Clause 9;

d) any deviation from the test method specified;

e) the date of the test.

Bibliography

[1] ISO 4618:2006, *Paints and varnishes — Terms and definitions*

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