INTERNATIONAL STANDARD

ISO 11908

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Binders for paints and varnishes — Amino resins — General methods of test

Liants pour peintures et vernis — Résines aminoplastes — Méthodes générales d'essai

Reference number
ISO 11908:1996(E)

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.

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.

International Standard ISO 11908 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes,* Subcommittee SC 10, *Test methods for binders for paints and varnishes.*

Annex A forms an integral part of this International Standard.

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Binders for paints and varnishes — Amino resins — General methods of test

1 Scope

This International Standard details general test methods for amino resins and solutions of amino resins intended for use as binders in paints, varnishes and related products.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 842:1984, *Raw materials for paints and varnishes — Sampling.*

ISO 1523:1983, *Paints, varnishes, petroleum and related products — Determination of flashpoint — Closed cup equilibrium method.*

ISO 2811:1974, *Paints and varnishes — Determination of density.*

ISO 3219:1993, *Plastics — Polymers/resins in the liquid state or as emulsions or dispersions — Determination of viscosity using a rotational viscometer with defined shear rate*

ISO 3251:1993, *Paints and varnishes — Determination of non-volatile matter of paints, varnishes and binders for paints and varnishes.*

ISO 3679:1983, *Paints, varnishes, petroleum and related products — Determination of flashpoint — Rapid equilibrium method.*

ISO 3682:1996, *Binders for paints and varnishes — Determination of acid value — Titrimetric method.*

ISO 4630:1981, *Binders for paints and varnishes — Estimation of colour of clear liquids by the Gardner colour scale.*

ISO 6271:1981, *Clear liquids — Estimation of colour by the platinum-cobalt scale.*

ISO 9020:1994, *Binders for paints and varnishes — Determination of free-formaldehyde content of amino resins — Sodium sulfite titrimetric method.*

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 amino resin: Synthetic resin resulting from the condensation of melamine or urea or their derivatives such as benzoguanamine with formaldehyde. These resins are often etherified with alcohols.

4 Properties and test methods

Unless otherwise agreed, the properties to be measured and the test methods to be used shall be as given in table 1.

Table 1 — Properties and test methods

Property	Test method
Colour	ISO 6271 (Platinum-cobalt scale) or ISO 4630 (Gardner colour scale)
Viscosity	ISO 3219
Non-volatile matter[1)]	ISO 3251
Flashpoint[1)]	ISO 1523 or ISO 3679
Density	ISO 2811
Free-formaldehyde content	ISO 9020
Compatibility with hydrocarbons (turbidity titration)[1)]	Annex A of this International Standard
Acid value	ISO 3682

1) For resin solutions only.

Annex A
(normative)

Test for compatibility with hydrocarbons (turbidity titration)

A.1 Principle

The compatibility with hydrocarbons is tested by titration of the resin solution at a temperature of 20 °C to 25 °C with a mixture of heptane and toluene until the solution becomes turbid.

A.2 Reagents

A.2.1 Heptane/toluene mixture.

Mix 80 parts by volume of analytical-grade heptane with 20 parts by volume of analytical-grade toluene.

A.3 Apparatus

Ordinary laboratory apparatus and glassware.

A.4 Sampling

Take a representative sample of the product to be tested, as described in ISO 842.

A.5 Procedure

Weigh, to the nearest 0,01 g, about 2 g (mass m) of the resin solution into a 50 ml conical flask. Titrate the solution with the mixture of heptane and toluene (A.2.1) until a faint bluish haze, just off perfect clarity, occurs for the first time. Note the volume of the mixture required (volume V).

A.6 Expression of results

Calculate the compatibility characteristic c, expressed in millilitres of heptane/toluene mixture per gram of resin solution, using the following equation:

$$c = \frac{V}{m}$$

where

V is the volume, in millilitres, of heptane/toluene mixture used;

m is the mass, in grams, of resin solution taken.

A.7 Precision

A.7.1 Repeatability, r

The value below which the absolute difference between two test results, each the mean of duplicates, obtained on identical material by one operator in one laboratory within a short interval of time using the standardized test method, may be expected to lie with a 95 % probability is 5 %.

A.7.2 Reproducibility, R

The value below which the absolute difference between two test results, each the mean of duplicates, obtained on identical material by operators in different laboratories using the standardized test method, may be expected to lie with a 95 % probability is 10 %.

A.8 Test report

The test report shall contain at least the following information:

a) all details necessary to identify the product tested;

b) a reference to this International Standard (ISO 11908);

c) the result of the test, as indicated in clause A.6;

d) any deviation from the test method specified;

e) the date of the test.

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