

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

ICS 87.060.20

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee STI/3, Paints, media and related products, upon which the following bodies were represented:

British Coatings Federation Ltd.
European Resin Manufacturers' Association
FOSFA International
Ministry of Defence
Oil and Colour Chemists' Association
Seed Crushers' and Oil Processors' Association

This British Standard, having been prepared under the direction of the Sector Board for Materials and Chemicals, was published under the authority of the Standards Board and comes into effect on 15 November 1996

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National foreword

This Part of BS 6782 has been prepared by Technical Committee STI/3. It is identical with ISO 11908:1996 *Binders for paints and varnishes — Amino resins — General methods of test*, published by the International Organization for Standardization (ISO).

In 1998 the European Committee for Standardization (CEN) accepted ISO 11908:1996 as European Standard EN ISO 11908:1998.

Cross-references

Publication referred to	Corresponding British Standard
ISO 842:1994	BS 4726:1986 <i>Methods for sampling raw materials for paints and varnishes</i> (Identical)
	BS 3900: <i>Methods of test for paints</i>
ISO 1523:1983	Part A9:1986 <i>Determination of flashpoint (closed cup equilibrium method)</i> (Identical)
ISO 2811:1974	Part A12:1975 <i>Determination of density</i> (Technically equivalent)
ISO 3219:1993	BS EN ISO 3219:1995 <i>Plastics. Polymers/resins in the liquid state or as emulsions or dispersions. Determination of viscosity using a rotational viscometer with defined shear state</i> (Identical)
ISO 3251:1993	BS EN ISO 3251:1995 <i>Paints and varnishes. Determination of non-volatile matter of paints, varnishes and binders for paints and varnishes</i> (Identical)
	BS 6782: <i>Binders for paints</i>
ISO 3682:1996	Part 3:1996 <i>Method for determination of acid value (titrimetric method)</i> (Identical)
ISO 4630:1981	Part 5:1987 <i>Method for estimation of colour of clear liquids by the Gardner colour scale</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 3679:1983, ISO 6271:1981 and ISO 9020:1994 to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

British Standards related to ISO 3679:1983 and ISO 9020:1994 are BS EN 456:1991 and BS 6782-7:1995 respectively.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN ISO title page, pages 2 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

ICS 35.100

Descriptors: Paints, varnishes, binders (materials), synthetic resins, aminoplasts, tests, physical tests, chemical tests

English version

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

(ISO 11908:1996)

Liants pour peintures et vernis — Résines
aminoplastes — Méthodes générales d'essai
(ISO 11908:1996)

Bindemittel für Beschichtungsstoffe —
Aminharze — Allgemeine Prüfverfahren
(ISO 11908:1996)

This European Standard was approved by CEN on 26 March 1998.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

The text of the International Standard from ISO/TC 35, Paints and varnishes, of the International Organization for Standardization (ISO) has been taken over as a European Standard by Technical Committee CEN/TC 139, Paints and varnishes, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 1998, and conflicting national standards shall be withdrawn at the latest by October 1998.

According to CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11908:1996 has been approved by CEN as a European Standard without any modification.

NOTE Normative references to International Standards are listed in Annex ZA (normative).

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 ^a	ISO 3251
Flashpoint ^a	ISO 1523 or ISO 3679
Density	ISO 2811
Free-formaldehyde content	ISO 9020
Compatibility with hydrocarbons (turbidity titration) ^a	Annex A of this International Standard
Acid value	ISO 3682

^a 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.

Annex ZA (normative)**Normative references to international publications with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Publication	Year	Title	EN	Year
ISO 3219	1993	<i>Plastics — Polymers/resins in the liquid state or as emulsions or dispersions — Determination of viscosity using a rotational viscometer with defined shear rate</i>	EN ISO 3219	1994
ISO 3251	1993	<i>Paints and varnishes — Determination of non-volatile matter of paints, varnishes and binders for paints and varnishes</i>	EN ISO 3251	1995
ISO 3679	1983	<i>Paints, varnishes, petroleum and related products — Determination of flashpoint — Rapid equilibrium method</i>	EN 456	1991

List of references

See national foreword.

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