

BRITISH STANDARD

Binders for paints and varnishes — Alkyd resins —

Part 1: General methods of test

**BS EN ISO
6744-1:2004
BS
6782-16.1:2000**

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6744-1:2004)*

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British Standards

National foreword

This British Standard is the official English language version of EN ISO 6744-1:2004. It is identical with ISO 6744-1:1999.

The UK participation in its preparation was entrusted to Technical Committee STI/3, Paint media and related products, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii and iii, a blank page, pages 1 to 4, the Annex ZA page and a back cover.

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This British Standard, having been prepared under the direction of Sector Committee for Materials and Chemicals, was published under the authority of the Standards Committee and comes into effect on 15 March 2000

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10883 Corrigendum No. 1	December 2000	Change to identifier
15238	13 July 2004	Implementation of the European Standard

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English version

Binders for paints and varnishes - Alkyd resins - Part 1: General methods of test (ISO 6744-1:1999)

Liants pour peintures et vernis - Résines alkydes - Partie 1:
Méthodes générales d'essai (ISO 6744-1:1999)

Bindemittel für Beschichtungsstoffe - Alkydharze - Teil 1:
Allgemeine Prüfverfahren (ISO 6744-1:1999)

This European Standard was approved by CEN on 8 April 2004.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

The text of ISO 6744-1:1999 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 6744-1:2004 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 November 2004, and conflicting national standards shall be withdrawn at the latest by November 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 6744-1:1999 has been approved by CEN as EN ISO 6744-1:2004 without any modifications.

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

INTERNATIONAL STANDARD

ISO 6744-1

First edition
1999-12-01

Binders for paints and varnishes — Alkyd resins —

Part 1: General methods of test

Liants pour peintures et vernis — Résines alkydes —

Partie 1: Méthodes générales d'essai



Reference number
ISO 6744-1:1999(E)

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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. 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 part of ISO 6744 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 6744-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*.

Together with the other parts (see below), this part of ISO 6744 cancels and replaces ISO 6744:1984, which has been technically revised.

ISO 6744 consists of the following parts, under the general title *Binders for paints and varnishes — Alkyd resins*:

- Part 1: General methods of test
- Part 2: Determination of phthalic anhydride content
- Part 3: Determination of unsaponifiable matter content
- Part 4: Determination of fatty acid content

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Binders for paints and varnishes — Alkyd resins —

Part 1: General methods of test

1 Scope

This part of ISO 6744 describes general methods of test for alkyd resins for use in paints, varnishes and similar products. It is also applicable to those solutions and similar preparations made from alkyd resins that are intended for use as binders for paints and varnishes.

The test methods to be used for an individual alkyd resin shall be the subject of agreement between the interested parties.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 6744. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 6744 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 2431:1993, *Paints and varnishes — Determination of flow time by use of flow cups.*

ISO 2811-1:1997, *Paints and varnishes — Determination of density — Part 1: Pyknometer method.*

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 3681:1996, *Binders for paints and varnishes — Determination of saponification value — Titrimetric method.*

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

ISO 4629:1996, *Binders for paints and varnishes — Determination of hydroxyl value — Titrimetric method.*

ISO 4630:1997, *Binders for paints and varnishes — Estimation of colour of clear liquids by the Gardner colour scale.*

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ISO 6271:1997, *Clear liquids — Estimation of colour by the platinum-cobalt scale.*

ISO 6744-2:1999, *Binders for paints and varnishes — Alkyd resins — Part 2: Determination of phthalic anhydride content.*

ISO 6744-3:1999, *Binders for paints and varnishes — Alkyd resins — Part 3: Determination of unsaponifiable matter content.*

ISO 6744-4: 1999, *Binders for paints and varnishes — Alkyd resins — Part 4: Determination of fatty acid content.*

ISO 15716:—¹⁾, *Binders for paints and varnishes — Storage stability.*

ASTM D 6166-97, *Standard Test Method for Color of Naval Stores and Related Products (Instrumental Determination of Gardner Color).*

3 Terms and definitions

For the purposes of this part of ISO 6744, the following terms and definitions apply.

3.1

alkyd resin

synthetic resin resulting from the polycondensation of polyacids and fatty acids (or oils) with polyhydric alcohols

3.2

modified alkyd resin

alkyd resin, modified in order to obtain specific properties, for example with rosin acids, phenolic resins, vinyl toluene, styrene, isocyanates, polyamides or acrylic, epoxy or silicone compounds

NOTE An alkyd resin based on tall-oil fatty acids containing not more than 4 % of rosin acids is regarded as an "alkyd resin", not as a "modified alkyd resin".

4 Classification

Alkyd resins are classified into the following groups:

- a) according to the content of fatty acid or oil (content of oil calculated as the triglyceride portion of the non-volatile matter):

short-oil alkyd resins: less than about 40 %

medium-oil alkyd resins: about 40 % to 60 %

long-oil alkyd resins: above about 60 %

- b) according to the content of dibasic acid (see ISO 6744-2);

- c) according to the modifying component (see 3.2).

1) To be published.

5 Properties and methods of test

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 methods of test

Property	Method of test
Colour	ASTM D 6166 (Spectrophotometric test) ISO 6271 (Pt-Co scale) ISO 4630 (Gardner scale)
Flow time	ISO 2431
Viscosity	ISO 3219
Non-volatile matter ^a	ISO 3251
Flashpoint ^a	ISO 1523 ISO 3679
Acid value ^b	ISO 3682
Hydroxyl value ^b	ISO 4629
Saponification value	ISO 3681
Storage stability	ISO 15716
Turbidity	To be agreed between the interested parties. An International Standard is in preparation (ISO 15715).
Density	ISO 2811-1
Phthalic anhydride content ^c	ISO 6744-2
Unsaponifiable matter ^c	ISO 6744-3
Fatty acid content ^{c, d}	ISO 6744-4
<p>^a For alkyd resin solutions only.</p> <p>^b The acid and hydroxyl values shall be calculated on the basis of the non-volatile matter of the resin solution.</p> <p>^c These methods are not applicable to alkyd resins that contain benzoic acid or polybasic acids other than <i>o</i>-phthalic and/or are modified by compounds such as rosin acids, vinyl toluene, styrene, isocyanates or acrylic, epoxy or silicone compounds.</p> <p>^d Rosin acids will be found in tall-oil fatty acids together with the fatty acids. Calculation of these rosin acids as part of the fatty acids shall be subject to agreement between the interested parties.</p>	

6 Test report

The test report shall contain at least the following information:

- a) a reference to this part of ISO 6744 (ISO 6744-1);
- b) all details necessary to identify the product tested;
- c) the results of the tests, and the methods used;
- d) any deviation, by agreement or otherwise, from the procedures specified;
- e) the dates of the tests.

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 (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 1523	2002	Determination of flash point - Closed cup equilibrium method	EN ISO 1523	2002
ISO 2431	1993	Paints and varnishes - Determination of flow time by use of flow cups	EN ISO 2431	1996
ISO 2811-1	1997	Paints and varnishes - Determination of density - Part 1: Pyknometer method	EN ISO 2811-1	2001
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	EN ISO 3219	1994
ISO 3681	1996	Binders for paints and varnishes - Determination of saponification value - Titrimetric method	EN ISO 3681	1998
ISO 4629	1996	Binders for paints and varnishes - Determination of hydroxyl value - Titrimetric method	EN ISO 4629	1998

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