INTERNATIONAL STANDARD

ISO 6744-4

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Binders for paints and varnishes — Alkyd resins —

Part 4: Determination of fatty acid content

Liants pour peintures et vernis — Résines alkydes —

Partie 4: Détermination de la teneur en acide gras

Reference number
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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 6744-4 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*

Binders for paints and varnishes — Alkyd resins —

Part 4:
Determination of fatty acid content

1 Scope

This part of ISO 6744 specifies a method for determining the fatty acid content of alkyd resins. It is always used in conjunction with ISO 6744-2 and -3, which contain the preceding analysis steps.

It is not applicable to modified alkyd resins (see 3.2 of ISO 6744-1:1999) or to resins containing benzoic acid.

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 3696:1987, *Water for analytical laboratory use — Specification and methods of test.*

ISO 6744-1:1999, *Binders for paints and varnishes — Alkyd resins — Part 1: General methods of test.*

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 15528:—[1)], *Paints, varnishes and raw materials for paints and varnishes — Sampling.*

3 Principle

The amount of fatty acids in an alkyd resin is determined by saponification and filtration (ISO 6744-2) and removal of unsaponifiable matter (ISO 6744-3). The fatty acid content is calculated from the mass of the residue obtained on evaporation of the ethyl ether extract.

1) To be published. (Revision of ISO 842:1984 and ISO 1512:1991)

4 Reagents

During the analysis, use only reagents of recognized analytical grade and only water of at least grade 3 purity as defined in ISO 3696.

4.1 Diethyl ether, free from peroxides, to which a crystal of hydroquinone has been added.

4.2 Acetone.

4.3 Hydrochloric acid, approximately 73 g of HCl per litre.

4.4 Silver nitrate, approximately 10 g/l solution.

5 Apparatus

Ordinary laboratory apparatus and glassware, together with the following:

5.1 Separating funnel, of capacity 250 ml.

5.2 Distillation apparatus, with a rotary evaporator or water bath.

5.3 Vacuum drying oven, capable of being maintained at approximately 60 °C.

6 Sampling

Take a representative sample of the product to be tested, as described in ISO 15528.

7 Procedure

Carry out the determination in duplicate.

If, in ISO 6744-3, the diethyl ether method for the determination of the unsaponifiable matter content was used, transfer the aqueous solution obtained as described in ISO 6744-3:1999, subclause 7.2, quantitatively into the separating funnel (5.1).

If, in ISO 6744-3, the light petroleum method for the determination of the unsaponifiable matter content was used, evaporate the aqueous ethanolic solution obtained after separation of the unsaponifiable matter, together with the alkaline washings, until the alcohol has been completely removed. Then transfer with water into the separating funnel (5.1).

Acidify the solution with hydrochloric acid (4.3) and extract three times, each time with 50 ml of diethyl ether (4.1).

Wash the combined ether extracts with water until no chloride ions are detectable with silver nitrate solution (4.4). Then evaporate the ether using a suitable apparatus (5.2), either under inert gas using a distillation apparatus with a rotary evaporator or, while observing all required safety precautions, over a water bath. If necessary, remove any water present by addition of acetone (4.2) and evaporating as described above.

Dry the residue in the vacuum drying oven (5.3) at approximately 60 °C until the difference between the results of two consecutive weighings is not greater than 0,1 %, calculated on the basis of the lower value. Weigh the residue to the nearest 1 mg (m_4).