INTERNATIONAL STANDARD

ISO 9020

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Binders for paints and varnishes — Determination of free-formaldehyde content of amino resins — Sodium sulfite titrimetric method

Liants pour peintures et vernis — Dosage du formaldéhyde libre dans les résines aminoplastes — Méthode titrimétrique au sulfite de sodium



ISO 9020:1994(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 9020 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 10, *Test methods for binders for paints and varnishes*.

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Binders for paints and varnishes — Determination of free-formaldehyde content of amino resins — Sodium sulfite titrimetric method

1 Scope

This International Standard specifies a titrimetric method for determining the free-formaldehyde content of amino resins. It is applicable to resins resulting from the polycondensation of urea and melamine with formaldehyde and to furan resins resulting from the polycondensation of furfuryl alcohol with formaldehyde without further modification.

The method is not applicable to furan resins modified with phenolic resins.

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 385-1:1984, Laboratory glassware — Burettes — Part 1: General requirements.

ISO 648:1977, Laboratory glassware — One-mark pipettes.

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

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

3 Principle

The method is based on the following reactions:

a)
$$CH_2O + Na_2SO_3$$
 (excess) + H_2O $\xrightarrow{pH = 9,2 \text{ to } 9,4}$ $\xrightarrow{15 \text{ min}}$ $\xrightarrow{pH = 9,2 \text{ to } 9,4}$ b) $ROCH_2OH + Na_2SO_3$ (excess) + H_2O $\xrightarrow{pH = 9,2 \text{ to } 9,4}$ $\xrightarrow{pH = 9,2 \text{ to } 9,4}$ $\xrightarrow{hOCH_2-SO_3Na + ROH + NaOH}$ $\xrightarrow{15 \text{ min}}$ 0 °C c) $>N-CH_2OH + Na_2SO_3$ $\xrightarrow{}$ no reaction under the test conditions