

Phenolic, amino and condensation resins - Determination of free-formaldehyde content

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 11402:2005 sisaldab Euroopa standardi EN ISO 11402:2005 + AC:2006 ingliskeelset teksti. Käesolev dokument on jõustatud 28.04.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 11402:2005 consists of the English text of the European standard EN ISO 11402:2005 + AC:2006. This document is endorsed on 28.04.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This International Standard specifies three methods for determining the free-formaldehyde content in the following: Phenolic resins, by potentiometric titration in aqueous or organic solution (hydroxylamine hydrochloride procedure). The method is applicable to resins with free-formaldehyde contents up to and including 15 % by mass. For free-formaldehyde contents between 15 % by mass and 30 % by mass, it may be necessary to adjust the concentrations of the standard volumetric solutions used accordingly.	Scope: This International Standard specifies three methods for determining the free-formaldehyde content in the following: Phenolic resins, by potentiometric titration in aqueous or organic solution (hydroxylamine hydrochloride procedure). The method is applicable to resins with free-formaldehyde contents up to and including 15 % by mass. For free-formaldehyde contents between 15 % by mass and 30 % by mass, it may be necessary to adjust the concentrations of the standard volumetric solutions used accordingly.
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ICS 83.080.10

Võtmesõnad: formaldehüüd, keemiline analüüs, mahtanalüüs, plastid, sisalduse määramine, sünteesvaigud, vaigud

English version

Phenolic, amino and condensation resins - Determination of
free-formaldehyde content (ISO 11402:2004)

Résines phénoliques, aminiques et de condensation -
Dosage du formaldéhyde libre (ISO 11402:2004)

Phenol-, Amin- und Kondensationsharze - Bestimmung des
Gehalts an freiem Formaldehyd (ISO 11402:2004)

This European Standard was approved by CEN on 3 February 2005.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

The text of ISO 11402:2004 has been prepared by Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11402:2005 by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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 August 2005, and conflicting national standards shall be withdrawn at the latest by August 2005.

This document will supersede EN ISO 9397:1997 and EN ISO 11402:1998.

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 11402:2004 has been approved by CEN as EN ISO 11402:2005 without any modifications.

**Phenolic, amino and condensation
resins — Determination of free-
formaldehyde content**

*Résines phénoliques, aminiques et de condensation — Dosage du
formaldéhyde libre*



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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 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11402 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO 11402:1993), as well as ISO 9020:1994 and ISO 9397:1995. The three standards have been combined into one, the sulfite procedure being taken from ISO 9020 and the hydroxylamine hydrochloride procedure from ISO 9397.

Phenolic, amino and condensation resins — Determination of free-formaldehyde content

1 Scope

This International Standard specifies three methods for determining the free-formaldehyde content in the following:

- a) **Phenolic resins**, by potentiometric titration in aqueous or organic solution (hydroxylamine hydrochloride procedure). The method is applicable to resins with free-formaldehyde contents up to and including 15 % by mass. For free-formaldehyde contents between 15 % by mass and 30 % by mass, it may be necessary to adjust the concentrations of the standard volumetric solutions used accordingly.
- b) **Amino resins and furan resins** (sulfite procedure). The method 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.
- c) **Condensation resins** (KCN procedure), including urea resins, furan resins, melamine resins and phenolic resins, as well as combinations and modifications of these resins.

The purpose of this International Standard is to establish recognized and useful determination procedures (for instance in order to check whether official regulations on the handling of hazardous workplace materials are observed). As far as possible, all formaldehyde-containing resins are to be included in this connection.

The free-formaldehyde content determined in formaldehyde condensation resins using this International Standard represents the actual content at the time of the determination. The value bears no quantitative relationship to the free-formaldehyde content during or after processing.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 385-1, *Laboratory glassware — Burettes — Part 1: General requirements*

ISO 648, *Laboratory glassware — One-mark pipettes*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*