



SLOVENSKI STANDARD
SIST EN ISO 2114:2000

01-maj-2000

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Plastics - Unsaturated polyester resins - Determination of partial acid value and total acid value (ISO 2114:1996)

Kunststoffe - Ungesättigte Polyesterharze - Verfahren zur Bestimmung der partiellen und Gesamtsäurezahl (ISO 2114:1996)

Plastiques - Résines de polyesters non saturés - Détermination de l'indice d'acide partiel et de l'indice d'acide total (ISO 2114:1996)

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Ta slovenski standard je istoveten z: EN ISO 2114:1996

ICS:

83.080.10 Duromeri Thermosetting materials

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EUROPEAN STANDARD

EN ISO 2114

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 1996

ICS 83.080.00

Descriptors: see ISO document

English version

**Plastics - Unsaturated polyester resins -
Determination of partial acid value and total acid
value (ISO 2114:1996)**

Plastiques - Résines de polyesters non saturés
- Détermination de l'indice d'acide partiel et
de l'indice d'acide total (ISO 2114:1996)

Kunststoffe - Ungesättigte Polyesterharze -
Verfahren zur Bestimmung der partiellen und
Gesamtsäurezahl (ISO 2114:1996)

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REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST... EN ISO 2114

PREVZET PO METODI RAZGLASITVE

-05- 2000

This European Standard was approved by CEN on 1996-10-19. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist 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.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 ISO 2114:1996 has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with 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 June 1997, and conflicting national standards shall be withdrawn at the latest by June 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 2114:1996 was approved by CEN as a European Standard without any modification.

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

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INTERNATIONAL STANDARD

**ISO
2114**

Second edition
1996-12-15

Plastics — Unsaturated polyester resins — Determination of partial acid value and total acid value

*Plastiques — Résines de polyesters non saturés — Détermination de
l'indice d'acide partiel et de l'indice d'acide total*

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Reference number
ISO 2114:1996(E)

ISO 2114:1996(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 2114 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO 2114:1974), which has been technically revised (see the introduction for details).

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Introduction

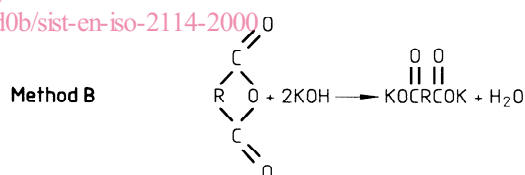
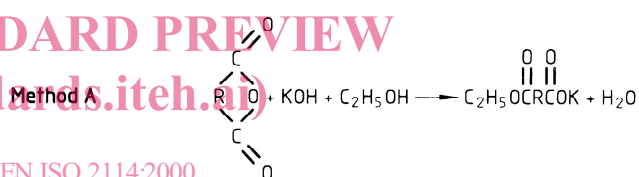
This International Standard was developed for unsaturated polyester resins and specifies the methods that are applicable for the determination of the acid values: total acid value and partial acid value.

The previous edition determined only the partial acid value, which corresponds to the neutralization of only half of the free anhydride present. In the case of resins based on maleic anhydride/tetrahydrophthalic acid, the error involved is very small. In the case of resins based on maleic anhydride/orthophthalic acid or maleic anhydride/tetrabromophthalic acid, however, the error is significant.

Hence, this edition includes methods for the determination of both partial and total acid values, using the chemical reactions given below:

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Plastics — Unsaturated polyester resins — Determination of partial acid value and total acid value

1 Scope

This International Standard specifies methods of determining the partial acid value (method A) and the total acid value (method B) of unsaturated polyester resins.

It is intended to provide quality-control data for the acceptance or rejection of resins in accordance with the terms of a specification, as well as to be used in research and development to monitor the completion of the polycondensation reaction.

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

ISO 6353-2:1983, *Reagents for chemical analysis — Part 2: Specifications — First series*.

3 Definitions

For the purposes of this International Standard, the following definitions apply:

3.1 acid value: The number of milligrams of potassium hydroxide (KOH) required to neutralize 1 g of unsaturated polyester resin under the test conditions.

3.2 partial acid value: The acid value corresponding to the neutralization of all the carboxyl-terminated groups and free acids plus half the anhydride groups in an unsaturated polyester resin.

3.3 total acid value: The acid value corresponding to the neutralization of all the carboxyl-terminated groups and free acids plus all the anhydride groups in an unsaturated polyester resin.

4 Principle

4.1 Method A

A weighed quantity of resin is dissolved in a solvent mixture and the resin solution is titrated potentiometrically (see note 1) with a standard volumetric solution of potassium hydroxide in ethanol. The partial acid value is the number of milligrams of potassium hydroxide required to neutralize 1 g of resin.

4.2 Method B

A weighed quantity of resin is dissolved in a solvent mixture including water. The free anhydride groups are allowed to hydrolyse for 20 min before titrating potentiometrically (see note 1) with a standard volumetric solution of potassium hydroxide in ethanol. The total acid value is the number of milligrams of potassium hydroxide required to neutralize 1 g of resin.

NOTES

1 Titration using a colour indicator is an optional alternative in both methods.

2 When titrating pure maleic polyester resins, it is better to use a standard volumetric solution of potassium hydroxide in methanol.