SLOVENSKI STANDARD
SIST EN ISO 3521:2000

01-maj-2000

Polimerni materiali - Nenasiļ eni poliestri in epoksidne smole - Doloļ anje celotnega volumskega skrļ ka (ISO 3521:1997)

Plastics - Unsaturated polyester and epoxy resins - Determination of overall volume shrinkage (ISO 3521:1997)

Kunststoffe - Ungesättigte Polyester und Epoxidharze - Bestimmung der Gesamtvolumenschwindung (ISO 3521:1997)

Plastiques - Résines d'époxydes et de polyesters non saturés - Détermination du retrait global en volume (ISO 3521:1997)

Ta slovenski standard je istoveten z: **EN ISO 3521:1999**

ICS:

83.080.10	Duromeri	Thermosetting materials

SIST EN ISO 3521:2000 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 3521

June 1999

ICS 83.080.10

English version

Plastics - Unsaturated polyester and epoxy resins - Determination of overall volume shrinkage (ISO 3521:1997)

Plastiques - Résines d'époxydes et de polyesters non saturés - Détermination du retrait global en volume (ISO 3521:1997)

Kunststoffe - Ungesättigte Polyester und Epoxidharze - Bestimmung der Gesamtvolumenschwindung (ISO 3521:1997)

This European Standard was approved by CEN on 6 May 1999.

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.

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.

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

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 from Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

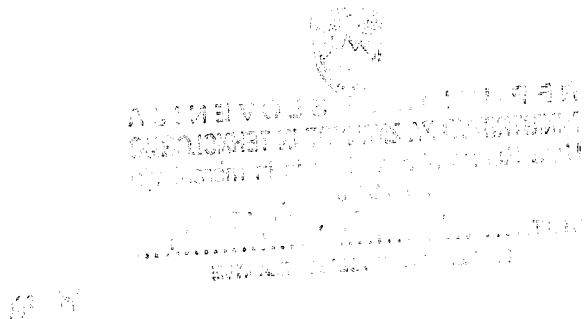
This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, 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 3521:1997 has been approved by CEN as a European Standard without any modification.

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



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.

Publication	Year	Title	EN	Year
ISO 1675	1985	Plastics - Liquid resins - Determination of density by the pycnometer method	EN ISO 1675	1998

INTERNATIONAL STANDARD

ISO 3521

Second edition
1997-03-01

Plastics — Unsaturated polyester and epoxy resins — Determination of overall volume shrinkage

Plastiques — Résines d'époxydes et de polyesters non saturés — Détermination du retrait global en volume

Reference number
ISO 3521:1997(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 3521 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO 3521:1976), of which it constitutes a technical revision.

International Organization for Standardization
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Plastics — Unsaturated polyester and epoxy resins — Determination of overall volume shrinkage

1 Scope

This International Standard specifies a method for the determination of the overall volume shrinkage of unsaturated polyester and epoxy resins.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1675:1985, *Plastics — Liquid resins — Determination of density by the pyknometer method.*

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 overall volume shrinkage: The sum of the shrinkage during curing and the shrinkage after curing of a casting when cooled to ambient temperature.

4 Principle

The overall volume shrinkage is calculated from the specific gravity of a last specimen before and after curing.

First, the specific gravity of the resin composition is determined

a) at the initial temperature of mixing of the components, excluding the initiators normally added to unsaturated polyesters (see 6.1.3, note 1);

b) at 23 °C after curing and conditioning of the last specimen.

The overall volume shrinkage is then calculated as a percentage of the change in the specific gravity before and after curing, as follows:

$$\text{Overall volume shrinkage} = \frac{\text{Uncured specific gravity} - \text{Cured specific gravity}}{\text{Uncured specific gravity}} \times 100$$