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SLOVENSKI STANDARD
SIST EN ISO 6721-1:2012

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Nadomešča:
SIST EN ISO 6721-1:2003
SIST EN ISO 6721-1:2003/kprA1:2010

Polimerni materiali - Ugotavljanje dinamičnih mehanskih lastnosti - 1. del: Splošna načela (ISO 6721-1:2011)

Plastics - Determination of dynamic mechanical properties - Part 1: General principles (ISO 6721-1:2011)

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Kunststoffe - Bestimmung dynamisch-mechanischer Eigenschaften - Teil 1: Allgemeine Grundlagen (ISO 6721-1:2011)

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Plastiques - Détermination des propriétés mécaniques dynamiques - Partie 1: Principes généraux (ISO 6721-1:2011)

Ta slovenski standard je istoveten z: **EN ISO 6721-1:2011**

ICS:

83.080.01	Polimerni materiali na splošno	Plastics in general

SIST EN ISO 6721-1:2012   **en,fr,de**

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 6721-1

May 2011

ICS 83.080.01

English Version

Plastics - Determination of dynamic mechanical properties - Part 1: General principles (ISO 6721-1:2011)

Plastiques - Détermination des propriétés mécaniques dynamiques - Partie 1: Principes généraux (ISO 6721-1:2011)

Kunststoffe - Bestimmung dynamisch-mechanischer Eigenschaften - Teil 1: Allgemeine Grundlagen (ISO 6721-1:2011)

This European Standard was approved by CEN on 14 May 2011.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN ISO 6721-1:2011 (E)

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Foreword

This document (EN ISO 6721-1:2011) 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 NBN.

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 November 2011, and conflicting national standards shall be withdrawn at the latest by November 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 6721-1:2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Endorsement notice

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The text of ISO 6721-1:2011 has been approved by CEN as a EN ISO 6721-1:2011 without any modification.

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INTERNATIONAL STANDARD

ISO
6721-1

Third edition
2011-05-15

Plastics — Determination of dynamic mechanical properties —

Part 1:
General principles

Plastiques — Détermination des propriétés mécaniques dynamiques —

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Partie 1: Principes généraux

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ISO 6721-1:2011(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 6721 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6721-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical properties*.

This third edition cancels and replaces the second edition (ISO 6721-1:2001), of which it constitutes a minor revision involving the following changes:

— a new subclause (9.6), covering the case when the dynamic-strain amplitude is varied, has been added to the procedure clause;

— the expression of results clause (Clause 10) and the test report clause (Clause 12) have been modified accordingly [Clause 10 by the addition of a new paragraph (the third) and Clause 12 by the addition of a new item, item n)].

ISO 6721 consists of the following parts, under the general title *Plastics — Determination of dynamic mechanical properties*:

— *Part 1: General principles*

— *Part 2: Torsion-pendulum method*

— *Part 3: Flexural vibration — Resonance-curve method*

— *Part 4: Tensile vibration — Non-resonance method*

— *Part 5: Flexural vibration — Non-resonance method*

— *Part 6: Shear vibration — Non-resonance method*

— *Part 7: Torsional vibration — Non-resonance method*

— *Part 8: Longitudinal and shear vibration — Wave-propagation method*

— *Part 9: Tensile vibration — Sonic-pulse propagation method*

— *Part 10: Complex shear viscosity using a parallel-plate oscillatory rheometer*

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ISO 6721-1:2011(E)

Introduction

The methods specified in the first nine parts of ISO 6721 can be used for determining storage and loss moduli of plastics over a range of temperatures or frequencies by varying the temperature of the specimen or the frequency of oscillation. Plots of the storage or loss moduli, or both, are indicative of viscoelastic characteristics of the specimen. Regions of rapid changes in viscoelastic properties at particular temperatures or frequencies are normally referred to as transition regions. Furthermore, from the temperature and frequency dependencies of the loss moduli, the damping of sound and vibration of polymer or metal-polymer systems can be estimated.

Apparent discrepancies may arise in results obtained under different experimental conditions. Without changing the observed data, reporting in full (as described in the various parts of ISO 6721) the conditions under which the data were obtained will enable apparent differences observed in different studies to be reconciled.

The definitions of complex moduli apply exactly only to sinusoidal oscillations with constant amplitude and constant frequency during each measurement. On the other hand, measurements of small phase angles between stress and strain involve some difficulties under these conditions. Because these difficulties are not involved in some methods based on freely decaying vibrations and/or varying frequency near resonance, these methods are used frequently (see ISO 6721-2 and ISO 6721-3). In these cases, some of the equations that define the viscoelastic properties are only approximately valid.

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