Plastics - Determination of dynamic mechanical properties - Part 2: Torsion-pendulum method (ISO 6721-2:2019)

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 6721-2:2019 sisaldab Euroopa standardi EN ISO 6721-2:2019 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 6721-2:2019 consists of the English text of the European standard EN ISO 6721-2:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 29.05.2019.	Date of Availability of the European standard is 29.05.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Plastics - Determination of dynamic mechanical properties - Part 2: Torsion-pendulum method (ISO 6721-2:2019)

Plastiques - Détermination des propriétés mécaniques dynamiques - Partie 2: Méthode au pendule de torsion (ISO 6721-2:2019)

Kunststoffe - Bestimmung dynamisch-mechanischer Eigenschaften - Teil 2: Torsionspendel-Verfahren (ISO 6721-2:2019)

This European Standard was approved by CEN on 8 June 2018.

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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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European foreword

This document (EN ISO 6721-2:2019) 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 2019, and conflicting national standards shall be withdrawn at the latest by November 2019.

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

This document supersedes EN ISO 6721-2:2008.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 6721-2:2019 has been approved by CEN as EN ISO 6721-2:2019 without any modification.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical porperties.*

This third edition cancels and replaces the second edition (ISO 6721-2:2008), which has been technically revised. The main changes compared to the previous edition are as follows:

— the document has been revised editorially;

— normative references have been changed to undated.

A list of all parts in the ISO 6721 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Plastics — Determination of dynamic mechanical properties —

Part 2: Torsion-pendulum method

1 Scope

This document specifies two methods (A and B) for determining the linear dynamic mechanical properties of plastics, i.e. the storage and loss components of the torsional modulus, as a function of temperature, for small deformations within the frequency range from 0,1 Hz to 10 Hz.

NOTE The temperature dependence of these properties, measured over a sufficiently broad range of temperatures (for example from −50 °C to +150 °C for most commercially available plastics), gives information on the transition regions (for example the glass transition and the melting transition) of the polymer. It also provides information concerning the onset of plastic flow.

The two methods described are not applicable to non-symmetrical laminates (see ISO 6721-3). The methods are not suitable for testing rubbers, for which the user is referred to ISO 4664-2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 6721-1, *Plastics — Determination of dynamic mechanical properties — Part 1: General principles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6721-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

A test specimen of uniform cross-section is gripped by two clamps, one of them fixed and the other connected to a disc, which acts as an inertial element, by a rod. The end of the specimen connected to the disc is excited, together with the disc, to execute freely decaying torsional oscillations. The oscillation mode is that designated IV in ISO 6721-1, and the type of modulus is G_{to} as defined in ISO 6721-1.

The inertial element is suspended either from the specimen (method A, see Figure 1) or from a wire (method B, see Figure 2). In the latter case, the wire is also part of the elastically oscillating system.