



International
Standard

ISO 6721-10

**Plastics — Determination of
dynamic mechanical properties —**

Part 10:

**Complex shear viscosity using a
parallel-plate and a cone-and-plate
oscillatory rheometer**

*Plastiques — Détermination des propriétés mécaniques
dynamiques —*

*Partie 10: Viscosité complexe en cisaillement à l'aide d'un
rhéomètre à oscillations à plateaux parallèles ou à géométrie
cône/plan*

**Fourth edition
2025-04**

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

ISO 6721-10:2025

<https://standards.iteh.ai/catalog/standards/iso/0017255c-56c6-404a-8a99-384599b89d79/iso-6721-10-2025>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Apparatus	2
5.1 Measurement apparatus	2
5.2 Temperature-controlled enclosure	4
5.3 Temperature measurement and control	4
5.4 Measurement geometry	4
5.4.1 Parallel plates geometry	4
5.4.2 Cone and plate geometry	5
5.5 Calibration	5
6 Sampling	6
7 Procedure	6
7.1 Test temperature	6
7.2 Zeroing the gap	6
7.3 Introducing the test specimen	6
7.4 Conditioning the test specimen	7
7.5 Test mode (controlled stress or controlled strain)	7
7.5.1 General	7
7.5.2 Controlled strain mode	7
7.5.3 Controlled stress mode	7
7.6 Determination of thermal stability of sample material	7
7.7 Determination of region of linear-viscoelastic behaviour	8
7.7.1 Controlled-strain mode	8
7.7.2 Controlled-stress mode	8
7.7.3 Confirmation of linear-viscoelastic behaviour	8
7.8 Frequency sweep	8
7.9 Temperature sweep	9
7.10 Air entrapment	9
8 Expression of results	9
8.1 Symbols used	9
8.2 Calculation of complex shear modulus and complex shear viscosity	10
9 Precision	11
10 Test report	12
Annex A (informative) Uncertainty limits	14
Annex B (informative) Verification of rheometer performance	16
Bibliography	20

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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 properties*.

This fourth edition cancels and replaces the third edition (ISO 6721-10:2015), which has been technically revised.

The main changes are as follows:

- rheometer geometry has been described in detail for both parallel-plate and cone-and-plate geometry;
- in 7.5, controlled stress mode and controlled strain mode have been defined in separate subclauses.

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.