

BS ISO 13145:2012



BSI Standards Publication

Rubber — Determination of viscosity and stress relaxation using a rotorless sealed shear rheometer

bsi.

...making excellence a habit.
AVA Documents™
Document Sharing Hub

National foreword

This British Standard is the UK implementation of ISO 13145:2012.

The UK participation in its preparation was entrusted to Technical Committee PRI/22, Physical testing of rubber.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2012.
Published by BSI Standards Limited 2012

ISBN 978 0 580 68203 2

ICS 83.060

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2012.

Amendments issued since publication

Date	Text affected
------	---------------

INTERNATIONAL STANDARD

ISO
13145

First edition
2012-09-15

Rubber — Determination of viscosity and stress relaxation using a rotorless sealed shear rheometer

*Caoutchouc — Détermination de la viscosité et de la relaxation de
contrainte au moyen d'un rhéomètre à cisaillement sans rotor étanche*



Reference number
ISO 13145:2012(E)
Documents
Document Sharing Hub
© ISO 2012



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Apparatus	3
5.1 General	3
5.2 Die cavity	3
5.3 Die closure	3
5.4 Movement	3
5.5 Heating and temperature control	4
5.6 Torque-measuring system	4
6 Calibration	6
7 Test piece	6
7.1 Preparation of the test piece	6
7.2 Protective films	6
8 Temperature	6
9 Procedure	7
9.1 Testing sequence	7
9.2 Preparation for the test	7
9.3 Rheometer loading	7
10 Reporting of results	7
10.1 Examples of reporting results	7
10.2 Basic expression of results	7
10.3 Additional results	8
10.4 Stress relaxation test results	8
11 Precision	8
12 Test report	8
Annex A (normative) Calibration schedule	10
Annex B (informative) Precision data	12
Bibliography	14

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.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13145 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

Introduction

The rheological properties of rubbers are related to their structural characteristics and will influence the behaviour of the rubber during processing and the performance of the final product.

For these reasons, the industrial environment requires instruments that can quickly and easily evaluate the rheological properties.

As a consequence, this standard test method was formulated using a rotorless sealed shear rheometer for rheological evaluation under defined conditions.

This test could be an alternative to the Mooney viscometer, still used as standard in many parts of the rubber industry to measure Mooney viscosity (in accordance with ISO 289-1). The defined conditions have been selected to provide a shear rate range similar to that used for Mooney viscosity and a good repeatability level.

This new test procedure should be performed over a short time and preferably in the automatic mode to optimize test efficiency.

