

# Rubber, vulcanized or thermoplastic — Determination of dynamic properties —

## Part 2: Torsion pendulum methods at low frequencies

ICS 83.060

# National foreword

This British Standard was published by BSI. It is the UK implementation of ISO 4664-2:2006. It supersedes BS 903-A31:1976 which is withdrawn.

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

A list of organizations represented on PRI/22 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.

**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 2006

© BSI 2006

ISBN 0 580 49729 1

## Amendments issued since publication

| Amd. No. | Date | Comments |
|----------|------|----------|
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |

# INTERNATIONAL STANDARD

**ISO**  
**4664-2**

First edition  
2006-10-01

---

---

## **Rubber, vulcanized or thermoplastic — Determination of dynamic properties —**

### **Part 2: Torsion pendulum methods at low frequencies**

*Caoutchouc vulcanisé ou thermoplastique — Détermination des  
propriétés dynamiques —*

*Partie 2: Méthodes du pendule de torsion à basses fréquences*



Reference number  
ISO 4664-2:2006(E)

**AVA** Documents  
Document Sharing Hub



# Contents

Page

|                                                                       |    |
|-----------------------------------------------------------------------|----|
| Foreword.....                                                         | iv |
| 1 Scope .....                                                         | 1  |
| 2 Normative references .....                                          | 1  |
| 3 Terms and definitions.....                                          | 1  |
| 4 Principle .....                                                     | 1  |
| 5 Apparatus .....                                                     | 2  |
| 5.1 Test piece holder .....                                           | 2  |
| 5.2 Inertial member .....                                             | 2  |
| 5.3 Torsion pendulum.....                                             | 2  |
| 5.4 Thermostatted test chamber .....                                  | 6  |
| 5.5 Devices for measurement of test piece dimensions.....             | 6  |
| 6 Test pieces .....                                                   | 6  |
| 6.1 Dimensions.....                                                   | 6  |
| 6.2 Preparation .....                                                 | 6  |
| 6.3 Number .....                                                      | 6  |
| 6.4 Conditioning.....                                                 | 6  |
| 7 Strain, frequency and temperature of test .....                     | 7  |
| 7.1 Strain .....                                                      | 7  |
| 7.2 Frequency .....                                                   | 7  |
| 7.3 Temperature .....                                                 | 7  |
| 8 Procedure .....                                                     | 7  |
| 8.1 Measurement of dimensions of test piece .....                     | 7  |
| 8.2 Mechanical conditioning of test piece.....                        | 7  |
| 8.3 Mounting of test piece.....                                       | 8  |
| 8.4 Measurement of test piece free length .....                       | 8  |
| 8.5 Temperature conditioning of test piece .....                      | 8  |
| 8.6 Testing .....                                                     | 8  |
| 9 Expression of results .....                                         | 9  |
| 9.1 Symbols .....                                                     | 9  |
| 9.2 Calculation of the elastic shear modulus (in-phase modulus) ..... | 9  |
| 9.3 Calculation of mechanical damping .....                           | 10 |
| 10 Test report .....                                                  | 11 |
| Bibliography .....                                                    | 12 |

## 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 4664-2 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

It cancels and replaces ISO 4663:1986, of which it constitutes a technical revision.

ISO 4664 consists of the following parts, under the general title *Rubber, vulcanized or thermoplastic — Determination of dynamic properties*:

- *Part 1: General guidance*
- *Part 2: Torsion pendulum methods at low frequencies*