

Rubber, vulcanized or thermoplastic — Resistance to ozone cracking —

Part 1: Static and dynamic strain testing

ICS 83.060

National foreword

This British Standard is the UK implementation of ISO 1431-1:2004+A1:2009. It supersedes BS ISO 1431-1:2004 which is withdrawn.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 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.

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

Amendments/corrigenda issued since publication

Date	Comments
31 January 2010	Implementation of ISO amendment 1:2009, clause 5.2 amended

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 1 November 2004

© BSI 2010

ISBN 978 0 580 61741 6

INTERNATIONAL STANDARD

ISO
1431-1

Fourth edition
2004-09-01

Rubber, vulcanized or thermoplastic — Resistance to ozone cracking —

Part 1: Static and dynamic strain testing

*Caoutchouc vulcanisé ou thermoplastique — Résistance au craquelage
par l'ozone —*

Partie 1: Essais sous allongement statique et dynamique



Contents		Page
Foreword		iv
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Principle	2
5	Apparatus (see Figure 1)	2
6	Test pieces	5
7	Conditioning	6
8	Test conditions	7
9	Static strain testing	8
10	Dynamic strain testing	9
11	Expression of results	10
12	Test report	11
Annex A (informative) Ozone cracking — Explanatory notes		13
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 1431-1 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analyses*.

This fourth edition cancels and replaces the third edition (ISO 1431-1:1989) and, in addition, the second edition of ISO 1431-2 (ISO 1431-2:1994), which have been combined and technically revised.

ISO 1431 consists of the following parts, under the general title *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking*:

- *Part 1: Static and dynamic strain testing*
- *Part 3: Reference and alternative methods for determining the ozone concentration in laboratory test chambers*

Rubber, vulcanized or thermoplastic — Resistance to ozone cracking —

Part 1: Static and dynamic strain testing

WARNING — Persons using this part of ISO 1431 should be familiar with normal laboratory practice. This part of ISO 1431 does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This part of ISO 1431 specifies procedures intended for use in estimating the resistance of vulcanized or thermoplastic rubbers to cracking when exposed, under static or dynamic tensile strain, to air containing a definite concentration of ozone and at a definite temperature in circumstances that exclude the effects of direct light.

Great caution is necessary in attempting to relate standard test results to service performance since the relative ozone resistance of different rubbers can vary markedly depending on the conditions, especially ozone concentration and temperature. In addition, tests are carried out on thin test pieces deformed in tension and the significance of attack for articles in service can be quite different owing to the effects of size and of the type and magnitude of the deformation. Explanatory notes on the nature of ozone cracking are given in Annex A.

Reference and alternative methods for determining the ozone concentration are described in ISO 1431-3.

2 Normative references

The following referenced documents are indispensable for the application 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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 1431-3, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 3: Reference and alternative methods for determining the ozone concentration in laboratory test chambers*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*