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**Rubber — Acquisition and presentation  
of comparable multi-point data**

*Caoutchouc — Acquisition et présentation de données multiples  
comparables*



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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.

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 24454 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

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# Rubber — Acquisition and presentation of comparable multi-point data

## 1 Scope

This International Standard identifies specific test procedures for the acquisition and presentation of comparable multi-point data for selected properties of rubber compounds. The data for each property are generated, using a single test method, as a function of important variables such as time, temperature and environmental effects. An important application of this International Standard consists in helping different suppliers produce material specification sheets in which the same set of properties is measured using the same conditions.

Guidance on the interpretation of results is given in Annex A.

## 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 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set at ambient, elevated or low temperatures — Part 1: At ambient or elevated temperatures*

ISO 1431-1, *Rubber, vulcanized and thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 1817, *Rubber, vulcanized — Determination of the effects of liquids*

ISO 2393, *Rubber test mixes — Preparation, mixing and vulcanization — Equipment and procedures*

ISO 3384, *Rubber, vulcanized or thermoplastic — Determination of stress relaxation in compression at ambient and elevated temperatures*

ISO 4664-1, *Rubber, vulcanized or thermoplastic — Determination of dynamic properties — Part 1: General guidance*

ISO 4665, *Rubber, vulcanized and thermoplastic — Resistance to weathering*

ISO 6914, *Rubber, vulcanized or thermoplastic — Determination of ageing characteristics by measurement of stress relaxation*

ISO 6943, *Rubber, vulcanized — Determination of tension fatigue*

ISO 8013, *Rubber, vulcanized — Determination of creep in compression or shear*

ISO 11346, *Rubber, vulcanized or thermoplastic — Estimation of life-time and maximum temperature of use*

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

ISO 24453, *Rubber — Acquisition and presentation of comparable single-point data*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1 multi-point data

data characterizing a rubber material by means of a number of test results for a property measured over a range of test conditions

#### 3.2 indicative property

property that has been selected to reveal the influence of an environment on a material through a comparison of measurements of the property before and after exposure

### 4 Test piece preparation

Where relevant, materials for test shall be prepared, mixed and moulded following the general principles given in ISO 2393.

The detailed conditions used shall be as recommended by the manufacturer of the rubber compound and shall, for each of the processing steps, be the same for each test piece except that different cure times may be used for different sized test pieces.

The equipment, mixing cycle and conditions used for moulding shall be given in the test report.

The final preparation of test pieces (for example stamping from sheet) shall be in accordance with the relevant test method standard.

The properties of a rubber compound can vary depending on the processing procedures used and this should be taken into account when comparing materials.

To maximize the usefulness of results, processing conditions should be representative of those used in production.

### 5 Conditioning

The time between mixing and moulding shall be between 24 h and one week.

The time between moulding and conditioning shall be between 16 h and four weeks. Recommendations for storage of vulcanized rubber products are given in ISO 2230.

Test pieces shall be conditioned in accordance with the relevant test method standard. Where this refers to standard laboratory conditions of temperature and/or humidity, these are taken to mean  $(23 \pm 2)^\circ\text{C}$  and 50 % RH.

NOTE If tests are carried out at the alternative standard laboratory temperature of  $(27 \pm 2)^\circ\text{C}$ , the results will not be strictly comparable unless adjusted by the known relationship of the property with temperature.