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## **Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device**

*Caoutchouc vulcanisé ou thermoplastique — Détermination de la  
résistance à l'abrasion à l'aide d'un dispositif à tambour tournant*



Reference number  
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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.

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 documents 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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This fourth edition cancels and replaces the third edition (ISO 4649:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the normative references have been updated;
- details regarding relative volume loss (3.2) have been added;
- the text has been updated for a better understanding.

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## Introduction

Various types of laboratory test equipment for wear resistance of rubber compound have been developed depending on the products to which rubber compounds have been applied in the past. Methods and equipment are briefly introduced in ISO 23794 and the test method using a rotating cylindrical drum device is described in detail in this document.

Because factors such as the grade of abrasive sheet, the type of adhesive used in the manufacture of the sheet and contamination and wear caused by previous testing lead to variations in the absolute values of abrasion loss, all tests are comparative. Runs with a reference compound are included so that the results can be expressed either as a relative volume loss compared to a calibrated abrasive sheet or as an abrasion resistance index compared to a reference compound.

This document describes two methods and specifies two standard reference compounds that can be chosen freely, although some combinations are more frequently used in practice. Considerable experience has been accumulated using the relative volume loss calculation in [10.2](#) for method A with reference compound no. 1 and method B with reference compounds no. 1 and no. 2.

When using standard reference compound no. 1 with a non-rotating test piece, a very important part of the method is the preparation of the abrasive sheet and its calibration.

Relative volume loss can be calculated for either test method with another reference compound, if the defined mass loss is known.