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# Rubber, vulcanized or thermoplastic — Determination of hardness —

## Part 5: Indentation hardness by IRHD pocket meter method

*Caoutchouc vulcanisé ou thermoplastique — Détermination de la  
dureté —*

*Partie 5: Dureté par pénétration par la méthode au duromètre de  
poche étalonné en DIDC*



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 of 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 first edition of ISO 48-5 cancels and replaces ISO 7619-2:2010, of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- A new standard number has been given.
- In the Introduction, an explanation of the purpose of the grouping work has been added.

A list of all parts in the ISO 48 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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## Introduction

ISO/TC 45/SC 2 established a principle that it would be helpful for users if standards on the same subject but covering different aspects or methods were grouped together, preferably with an introductory guidance standard, rather than being scattered throughout the numbering system. This has been achieved for some subjects, for example curemeters (ISO 6502) and dynamic properties (ISO 4664).

In 2017, it was decided to group standards for hardness and, subsequently, it was agreed that they would be grouped under the ISO 48 number. The new standards together with the previously numbered standards are listed below.

- ISO 48-1: former ISO 18517
- ISO 48-2: former ISO 48
- ISO 48-3: former ISO 27588
- ISO 48-4: former ISO 7619-1
- ISO 48-5: former ISO 7619-2
- ISO 48-6: former ISO 7267-1
- ISO 48-7: former ISO 7267-2
- ISO 48-8: former ISO 7267-3
- ISO 48-9: former ISO 18898

The hardness of rubber, as measured by an IRHD pocket meter or a Shore durometer, is determined from the complex response of the rubber to an applied indentation. An IRHD pocket meter is a portable hand-held durometer calibrated to measure on the IRHD scale. The measurement will depend upon:

- a) the elastic modulus of the rubber;
- b) the viscoelastic properties of the rubber;
- c) the thickness of the test piece;
- d) the geometry of the indenter;
- e) the pressure exerted;
- f) the rate of increase of pressure;
- g) the interval after which the hardness is recorded.

Because of these factors, it is inadvisable to relate results obtained using an IRHD pocket meter directly to Shore durometer hardness values, although correlations have been established for some individual rubbers and compounds.

NOTE Further information on the relationship between the durometer values and IRHD values is given in References [3][4][5].