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Rubber, vulcanized or thermoplastic — Determination of permeability to gases —

Part 1: Differential-pressure methods

*Caoutchouc vulcanisé ou thermoplastique — Détermination de la
perméabilité aux gaz —*

Partie 1: Méthodes à pression différentielle



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Foreword

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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This second edition cancels and replaces the first edition (ISO 2782-1:2012), which has been technically revised. A new Clause on simplified pressure sensor method has been added (see [Clause 6](#)).

ISO 2782 consists of the following parts, under the general title *Rubber, vulcanized or thermoplastic — Determination of permeability to gases*:

- *Part 1: Differential-pressure methods*
- *Part 2: Equal-pressure method*

Introduction

The measurement of the permeability of rubber to gases is important in the evaluation of compounds for products such as inner tubes, tubeless-tyre liners, hoses, balloons and other gas-containing products, as well as seals and diaphragms. The measurement is also of theoretical importance in the study of the characteristics of gas diffusion and gas solubility in relation to polymer structure.

This part of ISO 2782 proposes three different methods for the determination of the permeability to gases of vulcanized or thermoplastic rubber under a differential partial pressure, which are

- pressure sensor method which allows a complete characterization of a material,
- simplified pressure sensor method which is appropriate when only the gas permeability coefficient is needed (routine control, specification verification, design, etc.), and
- gas-chromatographic method.