
**Rubber, unvulcanized —
Determinations using a shearing-
disc viscometer —**

**Part 2:
Determination of pre-vulcanization
characteristics**

*Caoutchouc non vulcanisé — Déterminations utilisant un
consistomètre à disque de cisaillement —*

Partie 2: Détermination des caractéristiques de prévulcanisation

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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. 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. www.iso.org/patents

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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 289-2:1994), which has been technically revised. The following changes have been incorporated:

- a calibration schedule has been added in [Annex A](#);
- a precision clause has been moved to [Annex B](#);
- the introductory statements concerning safety and environmental caution have been added;
- the layout of the test report clause has been changed in accordance with ISO/TC 45/SC 2 internal agreements.

ISO 289 consists of the following parts, under the general title *Rubber, unvulcanized — Determinations using a shearing-disc viscometer*:

- *Part 1: Determination of Mooney viscosity*
- *Part 2: Determination of pre-vulcanization characteristics*
- *Part 3: Determination of the Delta Mooney value for non-pigmented, oil-extended emulsion-polymerized SBR*
- *Part 4: Determination of the Mooney stress-relaxation rate*

Rubber, unvulcanized — Determinations using a shearing-disc viscometer —

Part 2:

Determination of pre-vulcanization characteristics

WARNING 1 — Persons using this part of ISO 289 should be familiar with normal laboratory practice. This part of ISO 289 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.

WARNING 2 — Certain procedures specified in this part of ISO 289 might involve the use or generation of substances, or the generation of waste, that could constitute a local environmental hazard. Reference should be made to appropriate documentation on safe handling and disposal after use.

1 Scope

This part of ISO 289 specifies a method for determining the pre-vulcanization characteristics of compounded rubber.

The pre-vulcanization characteristics determined by this method provide a means of estimating how long compounded rubber can be maintained at high temperatures and remain processable.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 289-1, *Rubber, unvulcanized — Determinations using a shearing-disc viscometer — Part 1: Determination of Mooney viscosity*

ISO 18899, *Rubber — Guide to the calibration of test equipment*

3 Terms and definitions

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

3.1

pre-vulcanization time

scorch time

time including warm-up time, for the viscosity to increase by a specified amount from the minimum value

Note 1 to entry: Expressed in minutes.

4 Principle

The test consists of determining how the Mooney viscosity of the rubber compound changes with running time at a specified temperature relevant to the process for which the compound is to be used. The time at which the Mooney viscosity has increased by a specified number of units is recorded.