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

Part 1: Determination of Mooney viscosity

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

Partie 1: Détermination de l'indice consistométrique Mooney

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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).

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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 fourth edition cancels and replaces the third edition (ISO 289-1:2014), which has been technically revised to improve the calibration schedule.

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 1: Determination of Mooney viscosity

WARNING — 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.

1 Scope

This part of ISO 289 specifies a method using a shearing-disc viscometer for measuring the Mooney viscosity of uncompounded or compounded rubbers.

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 1795, *Rubber, raw natural and raw synthetic — Sampling and further preparative procedures*

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

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

ISO/TR 9272, *Rubber and rubber products — Determination of precision for test method standards*

ISO 18899:2013, *Rubber — Guide to the calibration of test equipment*

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

3 Principle

The torque which has to be applied under specified conditions in order to rotate a metal disc in a cylindrical chamber formed from mating dies filled with rubber is measured. The resistance offered by the rubber to this rotation is expressed in arbitrary units as the Mooney viscosity of the test piece.

4 Apparatus

4.1 Typical shearing-disc viscometer

A typical shearing-disc viscometer (see Figure 1), consisting of

a) two dies to form a cylindrical cavity,

b) a rotor,

c) a means for maintaining the dies at a constant temperature,

d) a means for maintaining a specified closure pressure,