BS ISO 289-3:2015

BSI Standards Publication

Rubber, unvulcanized — Determinations using a shearing-disc viscometer

Part 3: Determination of the Delta Mooney value for non-pigmented, oil-extended emulsion-polymerized SBR

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National foreword

This British Standard is the UK implementation of ISO 289-3:2015. It supersedes BS 903-A58.1:2001 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/22, Testing and analysis of rubber.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 89164 9

ICS 83.060

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2015.

Amendments issued since publication

Date	Text affected

BS ISO 289-3:2015

INTERNATIONAL STANDARD

ISO 289-3

Second edition
2015-10-15

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

Part 3: Determination of the Delta Mooney value for non-pigmented, oil-extended emulsion-polymerized SBR

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

Partie 3: Détermination de la valeur Delta Mooney pour le caoutchouc styrène-butadiène polymérisé en émulsion, étendu à l'huile, non pigmenté

Reference number
ISO 289-3:2015(E)

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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).

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).

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 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/TC45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This second edition cancels and replaces the first edition (ISO 289-3:1999), which has been technically revised to update normative references and to provide a reference to the latest calibration information.

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*

Introduction

The Delta Mooney value provides a means of predicting the behaviour or processibility of rubber during the primary stages of mixing, extruding, and calendering. It is usually associated with non-pigmented, oil-extended emulsion styrene-butadiene rubber, but it can be of use in providing information about the behaviour of other types. In the latter case, however, the conditions of test specified in this part of ISO 289 might not be suitable.

INTERNATIONAL STANDARD **ISO 289-3:2015(E)**

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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 for determining the Delta Mooney value of non-pigmented, oil-extended emulsion-polymerized styrene-butadiene rubber.

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, unvulcanised — Determinations using a shearing-disc viscometer — Part 1: Determination of Mooney viscosity*

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

3 Terms and definitions

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

3.1

Delta Mooney A values

NOTE A "massed test sample" is referred to as a "homogenized test sample" in ISO 1795. Similarly, an "unmassed test sample" can be described as an "unhomogenized test sample".

3.1.1
A1 value
difference between the Mooney viscosities of an unmassed test sample recorded at 15 min and 1 min, i.e. ML(1+15) – ML(1+1)

3.1.2
A2 value
difference between the Mooney viscosities of an unmassed test sample recorded at 7 min and 1 min, i.e. ML(1+7) – ML(1+1)

3.1.3
A3 value
difference between the Mooney viscosities of a massed test sample recorded at 15 min and 1,5 min, i.e. ML(1+15) – ML(1+1,5)