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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 1232.2-2025**

Replacing GB/T 1233-2008

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**Rubber, unvulcanized - Determinations using a shearing-disc  
viscometer - Part 2: Determinations of pre-vulcanization  
characteristics**

**(English Translation)**

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### Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 2 of GB/T 1232 "Determination of the viscosity of unvulcanized rubber by a disc shear viscometer". GB/T 1232 has been Post the following parts.

- Part 1: Determination of Mooney viscosity;
- Part 2: Determination of initial vulcanization characteristics;
- Part 3: Determination of Delta Mooney value of unfilled oil-extended emulsion polymerized styrene-butadiene rubber;
- Part 4: Determination of Mooney stress relaxation rate.

This document replaces GB/T 1233-2008 "Determination of initial vulcanization characteristics of unvulcanized rubber - Measurement by disc shear viscometer".

Compared with GB/T 1233-2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added calibration requirements (see Chapter 6);
- b) The precision requirements have been changed (see Chapter 10, Chapter 9 of GB/T 1233-2008).

This document is modified to adopt ISO 289-2:2020 "Unvulcanized rubber - Determination of viscosity by disc shear viscometer - Part 2: Initial vulcanization Determination of characteristics.

The technical differences between this document and ISO 289-2:2020 and their reasons

are as follows.

- Changed the definition of the term "initial cure time" and added 5 or 35 Mooney values and 3 or The scorch time (t35 or t18) required for 18 Mooney values (see 3.1) is to meet the requirements of my country for the integrity of the test results;
- ISO 289-1 (see Chapter 5, Chapter 7, 9.1 and A.2) has been replaced by the normative reference GB/T 1232.1 to adapt to my country Technical conditions;
- ISO 18899 (see Appendix A) was replaced by the normative reference GB/T 25269 to adapt to my country's technical conditions;
- Added the provisions for using large and small rotors to test scorch time and vulcanization index (see 9.2, 9.3) to meet the actual domestic Usage requirements, to facilitate the use of this document;
- Added the relevant content of Figure 1 (see Figure 1) to correspond to the provisions of Chapter 9;
- Added relevant content of test report (see Chapter 11) to correspond to the provisions of Chapter 9.

## Introduction

GB/T 1232 "Determination of the viscosity of unvulcanized rubber by disc shear viscometer" aims to establish the use of disc shear viscometer to determine the viscosity of raw rubber and unvulcanized rubber.

The method for the processing properties of vulcanized rubber is proposed to consist of four parts.

- Part 1: Determination of Mooney viscosity. The purpose is to establish a method for determining the Mooney viscosity of raw or unvulcanized rubber.
- Part 2: Determination of initial vulcanization characteristics. The purpose is to establish a method for determining the initial vulcanization characteristics of unvulcanized rubber.
- Part 3: Determination of Delta Mooney value of unfilled oil-extended emulsion polymerized styrene-butadiene rubber. Method for determining the Delta Mooney value of unvulcanized rubber.
- Part 4: Determination of Mooney stress relaxation. The purpose is to establish a method for determining the stress relaxation of raw or unvulcanized rubber.

The determination of the initial vulcanization characteristics of unvulcanized rubber, namely the scorch time, provides a method for predicting the processing properties of rubber.

The scorch time under certain conditions can measure the early vulcanization rate of the unvulcanized mixed rubber and evaluate the processing safety of the rubber.

Warning 1---People who use this document should have practical experience in formal laboratory work. This document does not indicate all possible safety

For any problems, users are responsible for taking appropriate safety and health measures and ensuring that the conditions stipulated by relevant national laws and regulations are met.

Warning 2---Some of the steps specified in this document may involve the use or generation of certain wastes, which may cause harm to the local environment.

Appropriate safe operation and post-use waste disposal provisions should be specified in relevant documents.

## 1 Scope

This document describes a method for determining the initial cure properties of unvulcanized rubber using a disc shear viscometer.

This document is applicable to the evaluation of the storage time and processability of unvulcanized rubber under high temperature conditions.

## 2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 1232.1 Unvulcanized rubber - Determination by disc shear viscometer - Part 1: Determination of Mooney viscosity (GB/T 1232.1-2016,ISO 289-1:2014,IDT)

GB/T 25269 Calibration Guide for Rubber Testing Equipment (GB/T 25269-2010, ISO 18899:2004, IDT)

## 3 Terms and definitions

The following terms and definitions apply to this document.

### 3.1 Pre-vulcanization time; scorch time

The shortest time required for the viscosity to rise from the minimum Mooney viscosity to the specified value, including warm-up time. When using a large rotor, the specified rise to 5 Mooney value or 35 Mooney value, when using a small rotor, it is specified to increase to 3 Mooney value or 18 Mooney value. Corresponding initial vulcanization time It is expressed as  $t_5$  or  $t_{35}$  and  $t_3$  or  $t_{18}$  respectively, and is expressed in minutes (min).

## **4 Principle**

At a specified temperature, the time required for the Mooney viscosity to rise to a specified value is determined according to the change of the Mooney viscosity of the mixed rubber with the test time.

The specified temperature corresponds to the temperature used in rubber processing.

## **5 Test equipment**

The instrument should comply with the provisions of GB/T 1232.1. When testing high Mooney viscosity rubber, a small rotor is allowed.