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

GB/T 9869.1-2025

Replacing GB/T 25268-2010

**Rubber - Measurement of vulcanization characteristics using
curemeters - Part 1: Introduction**
(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 1 of GB/T 9869 "Determination of vulcanization characteristics of rubber using a vulcanizer". GB/T 9869 has been published for the following part.

--- Part 1: Introduction;

--- Part 2: Disc oscillating rheometer.

This document replaces GB/T 25268-2010 "Guidelines for the Use of Rubber Vulcanizers".

In addition to the integration and editorial changes, the main technical changes are as follows.

a) The definitions of the terms "disk oscillating vulcanometer", "rotorless vulcanometer" and "rigidity" have been changed (see 3.1, 3.2 and 3.5, GB/T 25268-2010, 3.1, 3.2 and 3.5);

- b) The basic principle has been changed and the description of the relationship between torque and stiffness has been added (see Chapter 4, Chapter 4 of GB/T 25268-2010);
- c) Changed the descriptions of disk oscillating vulcanizers and rotorless vulcanizers and deleted the category of rotorless vulcanizers (see Chapter 5, GB/T 25268-2010, Chapter 5);
- d) Change the "general structure diagram" of the vulcanizer to "principle diagram" (see 6.1, 6.1 of GB/T 25268-2010).

This document is equivalent to ISO 6502-1:2018 "Rubber - Determination of vulcanization characteristics by vulcanizer - Part 1: Introduction".

Introduction

There are many types of existing vulcanizers, and their appearance and structure are different. With the continuous improvement of the level of vulcanization testing technology, the current standards have been at the same time, in order to be consistent with the ISO 6502 series of standards, it is necessary to revise the current standards and update the technical content.

GB/T 9869 "Determination of vulcanization characteristics of rubber using vulcanizer" aims to provide guidance for the selection and use of vulcanizers.

The test method for determining the vulcanization characteristics of rubber using a vulcanizer is intended to consist of three parts.

--- Part 1: Introduction. The purpose is to provide a general introduction and guidance for the design and use of vulcanizers.

--- Part 2: Disc oscillation vulcanizer. The purpose is to clarify the technical requirements that disc oscillation vulcanizer must meet and specify the use of disc Method for determining the vulcanization characteristics of rubber using an oscillating vulcanizer.

--- Part 3: Rotorless Rheometer. The purpose is to clarify the technical requirements that rotorless rheometer must meet and specify the use of rotorless rheometer.

Method for determining the vulcanization characteristics of rubber using a chemical analyzer.

The correspondence between this series of files and the previous version is as follows.

---GB/T 9869.1.GB/T 25268-2010;

---GB/T 9869.2.GB/T 9869-2014;

---GB/T 9869.3.GB/T 16584-1996.

Rubber vulcanizer to measure vulcanization characteristics Part 1: Introduction 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 provides an introduction to the determination of the cure characteristics of rubber compounds using a vulcanimeter.

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.

ISO 1382 Rubber Vocabulary Note. GB/T 9881-2008 Rubber Terminology (ISO 1382:2008, MOD)

3 Terms and definitions

For the purpose of this document, the terms and definitions defined in ISO 1382 and the following apply.

Oscilating-disc curing instrument; ODC A vulcanizer with a biconical disk that encloses the test specimen and oscillates in a temperature-controlled mold cavity.

Note: Oscillating disk rheometer is also called oscillating disk rheometer (ODR).

rotorlesscuremeter;RCM it has two molds that form a temperature-controlled mold cavity. One mold moves relative to the other to apply stress or strain to the specimen.

Changed vulcanizer.

Note: A rotorless curing instrument is also called a moving die rheometer (MDR).

Marching-moduluscure at the vulcanization temperature, the modulus increases rapidly, but before reaching the maximum value, it turns into a vulcanization type in which the modulus continues to increase slowly.

Characteristics reflected on the vulcanization curve.

Note 1: See Figure 1 for the vulcanization curve.

NOTE 2 Further explanation is given in Chapter 4.