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

GB/T 1687.3-2016

Replacing GB/T 1687-1993

**Rubber, vulcanized -- Determination of temperature rise and
resistance to fatigue in flexo meter testing -- Part 3:
Compression flexo meter (constant-strain type)
(English Translation)**

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Foreword

GB/T 1687 "vulcanized rubber in the flexion test temperature rise and fatigue resistance of the determination" is divided into the following four parts.

- Part 1. Fundamentals;
- Part 2. Rotation flex test;
- Part 3. Compression test (constant strain);
- Part 4. Constant stress flexion test.

This part is part 3 of GB/T 1687.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

Part 1. GB/T 1687-1993 "Determination of temperature rise and fatigue resistance of vulcanized rubber in flexion test - Part 2. Determination of temperature rise and fatigue resistance Shrinkage test ", compared with GB/T 1687-1993 main technical changes are as follows.

- updated normative reference documents (see Chapter 2);
- a detailed description of the flexure testing machine has been added (see 5.1);
- Added calibration requirements (see Chapter 6);
- increased pre-test preparation (see 9.1);
- increased the temperature of the thermocouple temperature of the press plate (see 9.2.1);
- Increased creep test method (see 9.2.4);
- Increased creep calculation method (see 10.2);
- Added Appendix A, Appendix B and Appendix C.

--- to delete the 1993 edition of Chapter 9 flexion testing machine work check;

--- Removal of the 1993 edition of Appendix A vulcanized rubber compression test machine calibration.

This part uses the translation method equivalent to ISO 4666-3.:2010 "vulcanized rubber in the flexion test temperature rise and fatigue resistance of the determination Part 3. Compression test (constant strain type) ".

In this part of the normative reference to the international documents have a consistent correspondence between the following documents.

GB/T 1687.1-2016 Determination of temperature rise and fatigue resistance of vulcanized rubber in flexion tests - Part 1. Basic Principle (ISO 4666-1.:2010, IDT);

Rubber - Physical test methods - General procedure for the preparation and adjustment of specimens (ISO 23529.:2004, IDT); GB/T 2941-2006.

Determination of hardness of vulcanized rubber or thermoplastic rubber (10 to 100 IRHD) (ISO 48.:1994, IDT).

This section is proposed by the China Petroleum and Chemical Industry Association.

This part of the National Rubber and Rubber Products Standardization Technical Committee (SAC/TC35) centralized.

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This part of the previous version of the standard to replace the release of the situation.

GB 1687-1983, GB/T 1687-1993.

Introduction

In the case of compression and flexing, the temperature rise of the rubber due to internal heat generation, this part provides a test to determine the temperature rise method.

The damage to the specimen can lead to fatigue failure when the heat is particularly severe and the temperature continues to rise. This section also applies to Determination of the fatigue life of such rubber.

This test is carried out under a selected static prestress or compressive load to apply a constant maximum amplitude to the specimen.

State strain.

Vulcanized rubber in the flexion test Determination of fatigue resistance Part 3.

Compression test (constant strain type) WARNING. Personnel using this section should have practical experience in formal laboratory work. This section does not address all possible security issues, it is the responsibility of the user to take appropriate safety and health measures and to ensure compliance with the conditions set forth in the relevant national regulations.

Note: Some of the operations involved in this section may be used to generate some substances or produce waste and have an adverse effect on the local environment.

Develop appropriate documents for the disposal of these substances after use.

1 Scope

This part of GB/T 1687 specifies the determination of temperature rise and fatigue resistance of vulcanized rubber in constant strain amplitude compression test law. The flexure testing machine described in this section is a Goodrich flexor tester and other equipment equivalent to its performance.

This part applies to the prediction of rubber products (such as tires, rubber bearings, rubber bearings, V-belt and rope wheel insert ring, etc.) in the dynamic the durability of the scratch. However, due to the large differences in the conditions of use of rubber products, it can not be assumed that the use of the characteristics described in this section of the acceleration Fatigue test has a simple correlation.

This part does not apply to vulcanized rubber with a hardness above 85IRHD.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 25269-2010 Rubber Test Equipment Calibration Guide (ISO 18899.:2004, IDT) ISO 48 vulcanized rubber or thermoplastic rubber hardness determination (10IRHD ~ 100IRHD) [Rubber, vulcanized or other-moplastic-Determination of hardness (hardness between 10IRHD and 100IRHD)] ISO 4666-1 vulcanized rubber - Determination of temperature rise and fatigue resistance in flexion tests - Part 1. Basic principles (Rubber, vulcanized-Determination of temperature rise and resistance to fatigue in flexometer testing-Part 1.

Basic principles

ISO 23529 Rubber Physical Test Method Sample Preparation and Adjustment General Procedure

(Rubber-General procedures for pre-paring and conditioning test pieces for physical test methods)

3 Terms and definitions

ISO 4666-1 Definitions of terms and definitions apply to this document.

4 Test principle

The specified compression load is applied to the specimen by means of a high inertia balance lever while the sample is subjected to a high frequency with a constant amplitude Cycle compression, with a thermocouple (the thermocouple can be measured in the process of bending the sample heat) to measure the bottom of the sample temperature rise, record production