

ICS 83.060

CCS G 40



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

GB/T 7758-2020

Replacing GB/T 7758-2002

**Rubber, vulcanized. Determination of low-temperature
characteristics. Temperature-retraction procedure (TR test)**

Issued on: December 14, 2020

Implemented on: July 1, 2021

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009:

This standard replaces GB/T 7758-2002 "Determination of Low Temperature Properties of Vulcanized Rubber Temperature Retraction Method (TR Test)", and

Compared with GB/T 7758-2002, the main technical changes are as follows:

---Updated and added normative reference documents (see Chapter 2, Chapter 2 of the:2002 edition);

---Added requirements for temperature measuring devices (see 5:3);

---Added requirements for temperature control devices (see 5:4);

---Added the requirements for stirring heat transfer medium tools (see 5:6);

---Added the requirements for timing devices (see 5:7);

---Modified the requirements for the length measuring device and the retraction rate scale, and improved the accuracy (see 5:8,:2002 edition 4:3);

---Added instructions on how to set a slight tension on the specimen (see 5:8);

---Added provisions for equipment calibration (see Chapter 6);

---The retention time of the sample holder with the sample in the cooling tank is changed from 10 20 min to 10 min +/- 2 min (see Chapter 8,:2002

Edition Chapter 6);

---The calculation method of the results of the measured values of TR10, TR30, TR50, and TR70 is changed from the average value of three samples to the median value of three samples

(See Chapter 9, Chapter 7 of the:2002 edition);

--- Added precision chapter (see Chapter 10);

---Appendix A and Appendix B have been added:

This standard uses the translation method equivalent to the ISO 2921:2019 "Temperature Retraction Procedure for the Determination of Low-Temperature Properties of Vulcanized Rubber (TR Test)

Test)":

The Chinese documents that have a consistent correspondence with the international documents cited in this standard are as follows:

---GB/T 2941-2006 Rubber physical test method General procedures for sample preparation and adjustment (ISO 23529:2004, IDT)

This standard was proposed by the China Petroleum and Chemical Industry Federation:

This standard is under the jurisdiction of the National Rubber and Rubber Products Standardization Technical Committee (SAC/TC35):

Drafting organizations of this standard: Jiangyin Haida Rubber & Plastic Co., Ltd., Double Star Group Co., Ltd., Guangzhou Synthetic Materials Research Institute Co., Ltd:

Company, Shenyang Rubber Research and Design Institute Co., Ltd., Shanghai Zhenjun Chemical Technology Co., Ltd., Changzhou Yilifangyuan Composite Material Technology Co., Ltd:

Company, High-speed Rail Testing Instruments (Dongguan) Co., Ltd., Jiangsu Xinzhewei Testing Machinery Co., Ltd., Jiangsu Mingzhu Testing Machinery Co., Ltd., Liaoning Province

Tieling Rubber Industry Research and Design Institute, Hongpu Technology (Hong Kong) Co., Ltd., Sailun Group Co., Ltd., Beijing Rubber Industry Research and Design

Academy Co., Ltd:

1 Scope

This standard specifies the method for determining the shrinkage properties of stretched vulcanized rubber at low temperatures:

Since the yield point elongation of many thermoplastic elastomers is between 5% and 20%, this standard does not involve thermoplastic rubber:

2 Normative references

The following documents are indispensable for the application of this document: For dated reference documents, only the dated version applies to this article

Pieces: For undated references, the latest version (including all amendments) applies to this document:

ISO 18899:2013 Rubber-Guidetothe calibration of test equipment

ISO 23529 Rubber-General procedures for the preparation and adjustment of rubber physical test methods (Rubber-General procedures for preparing and conditioning test pieces for physical test methods)

3 Terms and definitions

Terms and definitions are not listed in this document:

ISO and IEC have established terminology databases for standardization purposes: The website is as follows:

---IEC Electropedia: <https://www.electropedia.org/>;

---ISO Online browsing platform: <https://www.iso.org/obp>:

4 Principle

The sample is stretched at a standard laboratory temperature, and then cooled to a temperature low enough that no retraction occurs when the tensile force is removed: Remove

Stretching force and increase the temperature at a uniform rate: Measure the temperature when the specified retraction rate is reached:

5 Instruments

5:1 Retracting device

It is composed of the parts specified in 5:2~5:8 (see Figure 1):