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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 7755.2-2019

Rubber, vulcanized or thermoplastic -- Determination of permeability to gases -- Part 2: Equal-pressure methods

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Foreword

GB/T 7755 "Determination of air permeability of vulcanized rubber or thermoplastic rubber" is divided into two parts.

--- Part 1. Differential pressure method;

--- Part 2. Isobaric method.

This part is the second part of GB/T 7755.

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

This part uses the redrafting method to modify and adopt ISO 2782-2..2018 "Determination of air permeability of vulcanized rubber or thermoplastic rubber Part 2

Part. Isobaric Method.

Compared with ISO 2782-2..2018, this section has more structural adjustments.Appendix A lists this section and ISO 2782-2..2018.

List of chapter number comparisons.

The technical differences between this part and ISO 2782-2..2018 and their causes are as follows.

--- Regarding the normative references, this section has made adjustments with technical differences, and the adjustments are reflected in Chapter 2 "Regulations.

In the "general reference documents", the specific adjustments are as follows.

* Replaced ISO 23529 with GB/T 2941-2006 equivalent to the international standard (see 4.6.3, 4.6.4, 5.5.3,

5.5.4);

* Deleted ISO 2782-1..2016, and directly expressed the content quoted in ISO 2782-1..2016.

--- Added the "Coulomb Test Method (Method B)" to meet China's technological development needs (see Chapter 5).

--- In Chapter 3, "Terms and Definitions", terms such as "gas permeability", "gas diffusion coefficient" and "steady state" have been added to facilitate the use of

It is good for understanding (see 3.1, 3.2, 3.3).

--- Optimize the principle expression of gas chromatography detection method, and add "through the data processing device to obtain the gas of the test sample

"Transmittance, gas permeability coefficient", and deleted "by this method, the test gas containing water vapor can be measured, also

The mixed gas can be analyzed to determine the composition. "Not only makes the principle statement more complete, but also more suitable for China's current practice.

International test technical conditions (see 4.1).

--- Simplify the description of the test gas, delete "hydrogen, or mixed gas, such as air, liquefied petroleum gas (gaseous) or coal gas",

In order to meet the current actual test technical conditions in China (see 4.4).

--- Added "selected test method (Method A or Method B)" for easy use and selection [see Chapter 6 c)].

--- The types of gases suitable for FID detectors and TCD detectors in gas chromatography detection methods have been added to adapt to China's technical conditions,

Expand utility (see 4.2.3).

--- Modified the description of "carrier gas", designating hydrogen as the carrier gas in the gas chromatography detection method for easy use and selection (see 4.5).

--- Modified the description of "shape and size in the sample", increased the thickness requirements of the sample containing butyl rubber material, and improved the accuracy of the test

Accuracy (see 4.6.1).

--- Combined the content of sample preparation, adjustment, pre-treatment and adjustment, making the standard content more concise (see 4.6.4).

--- Added Appendix C "Reference film and verification procedures" to cooperate with the use of coulomb test method (Method B).

The following editorial changes have also been made in this section.

--- Increased the conversion relationship between different units of "gas permeability" for easy use (see note in 4.10.1);

--- Deleted the notes of 15.1 and 15.2 in ISO 2782-2..2018.

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

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

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the company.

Introduction

The importance of measuring the permeability of rubber is to more accurately predict and judge the manufacturing of inner tubes, tubeless tire liners, hoses, balloons, and

The barrier properties of other gas containers, seals and film materials improve product quality. This section is based on China's national development needs,

Added coulometer test method. At present, the coulomb test method is being used to test the oxygen permeability of various rubber materials. This measurement is being studied in Oak

The oxygen permeability of the rubber material and the air holding performance of the tire have theoretical significance. At the same time, the addition of the coulomb test method makes this part of the standard

The content is more abundant, which increases the selectivity and operability for users in choosing the test method.

Determination of air permeability of vulcanized rubber or thermoplastic rubber

Part 2. Isobaric method

Caution --- Personnel using this section should have practical experience in formal laboratory work. This section does not indicate all possible security issues.

It is the responsibility of the user to take appropriate safety and health measures and ensure compliance with the conditions stipulated by relevant national regulations.

1 Scope

This part of GB/T 7755 specifies the use of gas chromatography (method A) in a state where the two sides of the sample are isostatic and there is a difference in concentration.

Method for measuring gas transmission rate and gas permeability coefficient of vulcanized rubber or thermoplastic rubber with coulometer test method (Method B).

This section applies to vulcanized rubber or thermoplastic rubber with a hardness of not less than 35 IRHD (International Rubber Hardness).

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article

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

GB/T 2941-2006 General test procedure for the preparation and adjustment of rubber physical test methods (ISO 23529..2004, IDT)

ISO 18899..2013 Calibration Guide for Rubber Testing Equipment (Rubber-Guidetothecalibrationoftestequip-

ment)

3 terms and definitions

The following terms and definitions apply to this document.

3.1

Gas transmission rate

The number of moles of test gas per unit area per unit area of test gas per unit time in a state where both sides of the sample are isostatic and there is a concentration difference.

3.2

Gaspermeabilitycoefficient

In a state where the two sides of the sample are isostatic and there is a difference in concentration, the test gas permeates the friction of the unit area and unit thickness of the sample per unit time.