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

GB/T 41938-2022

**Rubber compounding ingredients - Silica, precipitated,
hydrated - Evaluation procedures in a blend of solution
styrene-butadiene rubber(S-SBR) and butadiene rubber(BR)**

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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 modified to adopt ISO 5794-3.2011 "Rubber Compounding Agent Precipitated Hydrated Silica Part 3. Solution Polystyrene Butadiene Rubber and

Procedure for the evaluation of mixtures of butadiene rubber.

Compared with ISO 5794-3.2011, this document has made the following structural adjustments.

--- Added Chapter 3 "Terms and Definitions";

---Chapter 4~Chapter 6 corresponds to Chapter 3~Chapter 5 of ISO 5794-3.2011.

The technical differences between this document and ISO 5794-3.2011 and their reasons are as follows.

--- Deleted "this formula may be considered as a template for the tread formula of silicon-based passenger tires", which does not meet the requirements of our country's standards (see

Chapter 1 of ISO 5794-3.2011);

--- Increased HG/T 3061 (see Chapter 3) to adapt to the technical conditions of our country;

---Added the "Technical Specifications" column, added "IRC/IRB is N330 carbon black" in the note, and deleted Table 1 in ISO 5794-3.2011

The footnotes d, e, f, g, i, j, k are convenient for standard users to operate (see Table 1, Table 1 of ISO 5794-3.2011);

---The volume of the internal mixer is adjusted from 1.5L in ISO 5794-3.2011 to 1L as an

example, and other volumes can also be used

Internal mixer, to meet the national conditions of our country (see 5.1.1, 4.1.1 of ISO 5794-3.2011);

--- Replaced ISO 2393 (see 5.1.1) with the normatively quoted GB/T 6038 to adapt to the technical conditions of our country;

--- Replaced ISO 289-1 (see 5.2) with the normatively quoted GB/T 1232.1 to adapt to the technical conditions of our country;

--- Replaced ISO 3417 (see 6.1) with the normatively quoted GB/T 9869 to adapt to the technical conditions of our country;

--- Replaced ISO 6502 (see 6.2) with the normatively quoted GB/T 16584 to adapt to the technical conditions of our country;

--- Replaced ISO 37 (see 6.3) with the normatively quoted GB/T 528 to adapt to the technical conditions of our country;

--- Added GB/T 531.1 (see 6.4), the Shore hardness is a common test method in my country to adapt to the technical conditions of our country;

--- Deleted ISO 48 (see 5.4 of ISO 5794-3.2011), the international hardness test method is not commonly used in my country, in order to adapt to my country's technology

technical conditions.

The following editorial changes have been made to this document.

---In order to coordinate with the existing document, the document name is changed to "Rubber Compound Precipitated Hydrated Silica in Solution Polymerized Styrene Butadiene Rubber

(S-SBR) and butadiene rubber (BR) mixture evaluation method";

--- Deleted Note 1 and Note 2 in Chapter 1 of ISO 5794-3.2011;

--- Increased the note of 6.3.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the rubber compounding agent precipitated hydrated silica in solution polymerized styrene-butadiene rubber (S-SBR) and butadiene rubber (BR) mixture

Test formulations, equipment, procedures and evaluation methods required for physical performance testing.

This document is applicable to precipitated hydrated silica as a rubber compounding agent.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 528 Determination of tensile stress-strain properties of vulcanized rubber or thermoplastic rubber (GB/T 528-2009, ISO 37.2005,

IDT)

GB/T 531.1 Test method for indentation hardness of vulcanized rubber or thermoplastic rubber - Part 1. Shore durometer method (Shore hardness)

(GB/T 531.1-2008, ISO 7619-1.2004, IDT)

GB/T 1232.1 Determination of unvulcanized rubber with a disc shear viscometer - Part 1. Determination of Mooney viscosity

(GB/T 1232.1-2016, ISO 289-1.2014, IDT)

GB/T 6038 Rubber test compound batching, mixing and vulcanization equipment and operating procedures (GB/T 6038-2006, ISO 2393.

1994, MOD)

GB/T 9869 Determination of vulcanization characteristics of rubber compounds, disk oscillation vulcanizer method (GB/T 9869-2014, ISO 3417.

2008, IDT)

GB/T 16584 Determination of vulcanization characteristics of rubber with a rotorless vulcanizer (GB/T 16584-1996, eqv ISO 6502.1991)

HG/T 3061 Rubber compounding agent Precipitated hydrated silica (HG/T 3061-2020, ISO 5794-1.2010, MOD)

3 Terms and Definitions

The terms and definitions defined in HG/T 3061 apply to this document.

4 Test formula

Table 1 shows the standard test formula, which is suitable for all kinds of precipitated hydrated silica to be evaluated.

If possible, international or national standard chemicals should be used, and the materials used should be consistent with the chemical properties in Table 1.

When comparing multiple laboratories, the same grade of S-SBR and BR should be used.

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