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

GB/T 3516-2024

Replacing GB/T 3516-2006

Rubber - Determination of solvent extract

橡胶 溶剂抽出物的测定

(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 replaces GB/T 3516-2006 "Determination of solvent extracts of rubber". Compared with GB/T 3516-2006, except for structural adjustment in addition to the integration and editorial changes, the main technical changes are as follows.

--- Changed the scope and added two test methods, Method B and Method D (see Chapter 1, Chapter 1 of the 2006 edition);

--- Deleted Type 1 all-glass extraction device [see 6.1a of the 2006 edition)];

--- Changed the sample mass range of method A from 3g~5g to 2g~5g (see 8.2.2, 8.1.1 of the 2006 edition);

--- Changed the number of times the solvent refluxes in the extraction cup in method A from 10 to 20 times per hour to at least 5 times per hour (see 8.2.5, 8.1.3 of the 2006 edition);

--- Changed the method for extracting samples in boiling solvents (see 8.4 Method C, 8.2 Method B of the 2006 edition);

--- Deleted the error range requirement and replaced it with "precision" (see Chapter 10, 9.4 of the 2006 edition).

This document is equivalent to ISO 1407:2023 "Determination of solvent extractables of rubber".

The following minimal editorial changes were made to this document.

--- In the scope, it is clarified that the two methods applicable to unvulcanized rubber and vulcanized rubber are method A and method B, so that the description More accurate and clear (see Chapter 1);

--- Added the recommended recovery bottle and extractor volume notes under the extraction device for ease of use (see Figure 1).

1 Scope

This document describes four methods for the quantitative determination of solvent extractables in raw rubber (including natural and synthetic raw rubber).

Method A and Method B are also applicable to unvulcanized rubber and vulcanized rubber.

Method A determines the ratio of the mass of the extract after solvent evaporation to the mass of the original sample.

Method B determines the mass change of the rubber sample before and after extraction.

Method C. Extract the sample in a boiling solvent and measure the mass change of the rubber sample before and after extraction. This method is only applicable to raw rubber.

Method D is to determine the ratio of the mass change of the rubber sample before and after extraction to the mass of the original sample. This method is only applicable to raw rubber.

Note 1: The test results may not be the same due to the different test methods, test conditions and reagents used.

Note 2: In general, based on the content and characteristics of the extractables and the diffusion equilibrium, the test results of method C are lower than those of methods A and B (especially for samples). However, method C takes less time to test than methods A and B.

Note 3: Methods C and D are not applicable to samples that decompose during the extraction process.

Note 4: Method D is usually used for product control.

Appendix A recommends the most suitable extraction solvent for each rubber.

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.

Note: GB/T 15340-2008 Sampling and preparation methods of natural and synthetic raw rubber (ISO 1795:2000, IDT) ISO 4661-2 Rubber, vulcanized rubber - Preparation of samples and test pieces - Part 2: Chemical tests Note. GB/T 17783-2019 Preparation of chemical test samples and specimens for vulcanized rubber or thermoplastic rubber (ISO 4661-2:2018, MOD)

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4 Principle

The rubber sample is extracted using a suitable apparatus and solvent.

The ratio of the mass of the extract in the solvent after extraction or the mass change of the sample before and after extraction to the mass of the original sample before extraction is calculated.

Extract content.