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

GB/T 8088-2025

Replacing GB/T 8088-2008

**Raw natural rubber and natural rubber latex - Determination of
nitrogen content**

天然生胶和天然胶乳 氮含量的测定

(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 8088-2008 "Natural rubber and natural rubber latex - Determination of nitrogen content".

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added "When there is a dispute over the use of the semi-micro method, the glass apparatus method shall be the preferred method" (see Chapter 1);
- b) Deleted catalyst solution (see 4.1.1.2 of the 2008 edition);
- c) Added titanium dioxide catalyst mixture (see 5.1.1.1, 5.4.1, 6.1.1.1 and 6.4.1);
- d) Added the normative reference document GB/T 601 as the calibration method for sulfuric acid standard solution and sodium hydroxide standard solution.

Method (see 5.1.3, 5.1.4, 6.1.3 and 6.1.4);

- e) The sample weight of solid boric acid for preparing boric acid solution has been changed (see 5.1.6 and 6.1.6, 4.1.6 and 5.1.6 of the 2008 edition);
- f) Change the mixed indicator solution to mixed indicator solution A (see 5.1.7 and 6.1.7.1, 4.1.7 and 6.1.7.1 of the 2008 edition) 5.1.7), and added mixed indicator solution B (see 6.1.7.2);
- g) Change the total solids content of latex in the constant method from "2g" to "10g" (see 5.3, 4.3 of the 2008 edition);
- h) The precise value of sample weighing has been changed (see 5.4.1, 4.4.1 of the 2008 edition);
- i) The expression and calculation formula of nitrogen content have been changed (see 5.6 and 6.6, 4.6 and 5.6 of the 2008 edition);
- j) The concentrations of sodium hydroxide standard titrant and sulfuric acid standard titrant are increased to three significant figures (see 5.6 and 6.6);
- k) Added automatic digestion module (see 6.2.2);
- l) The automatic and semi-automatic Kjeldahl nitrogen analyzer methods are added to the semi-micro method (see 6.2.5 and 6.4.2.2);
- m) Change the length of the condenser from 250mm to 300mm (see Figure 8, Figure 7 of the 2008 edition), and change the length of the condenser outlet pipe to the height is changed from 500mm to 600mm (see Figure 10, Figure 9 of the 2008 edition);
- n) Change the total solid amount of latex in the semi-micro method from "0.1g" to "5g" (see 6.3, 5.3 of the 2008 edition);
- o) The precision was changed from a requirement to informative and its basis and data

were changed (see Chapter 7, Chapter 6 of the 2008 edition).

This document is modified to adopt ISO 1656:2019 "Natural rubber and natural rubber latex - Determination of nitrogen content".

This document has the following structural adjustments compared to ISO 1656:2019.

--- Deleted 5.1.3, 6.1.3 and 6.2.1 of ISO 1656:2019;

---6.1.3~6.1.6 correspond to 6.1.4~6.1.7 of ISO 1656:2019, of which 6.1.7.1 corresponds to 6.1.8;

---6.2.1 and 6.2.2 correspond to 6.2.1.1 and 6.2.1.2 of ISO 1656:2019, and 6.2.3 and 6.2.4 correspond to 6.2.2 and 6.2.3 of ISO 1656:2019;

---Added 6.2.5;

---Separate 6.4.2 of ISO 1656:2019 into 6.4.2.1 "Glass apparatus method" and 6.4.2.2 "Automatic and semi-automatic Kjeldahl apparatus" Two articles of the Law.

The technical differences between this document and ISO 1656:2019 and their reasons are as follows.

--- Changed the scope (see Chapter 1) and increased the applicable limits of the document to adapt to the provisions of GB/T 1.1-2020;

--- The requirements for disodium tetraborate solution (see 5.1.3 of ISO 1656:2019) have been deleted and implemented in accordance with GB/T 601 to adapt to my country's Provisions for the calibration of standard titration solutions;

--- Changed the calibration of sulfuric acid standard solution and sodium hydroxide standard solution to be carried out in accordance with GB/T 601 (see 5.1.3, 5.1.4, 6.1.3 and 6.1.4, ISO 1656:2019 5.1.3, 5.1.4, 6.1.3 and 6.1.4), to adapt to the standard titration solution in my country provisions;

--- Replaced ISO 123 with the normative reference GB/T 8290, replaced ISO 124 with the normative reference GB/T 8298, replaced ISO 125 with the normative reference GB/T 8299, replaced ISO 126 with the normative reference GB/T 8291 the normative reference GB/T 15340 replaces ISO 1795 (see 5.3 and 6.3, 5.3 and 6.3 of ISO 1656:2019), with Adapt to my country's regulations on latex and natural rubber;

--- Changed the amount of water and sulfuric acid standard titration solution in the test steps of the constant method (see 5.4.2, ISO 1656:2019 5.4.2) to meet the test conditions;

--- Changed the expression and calculation formula of nitrogen content (see 5.6 and 6.6, 5.6 and 6.6 of ISO 1656:2019) to adapt GB/T 20001.4-2015 regulations;

--- Added a mixed indicator solution (see 6.1.7.2) to meet the needs of the newly added "automatic and semi-automatic Kjeldahl nitrogen determination instrument method";

--- Change the notes in Figures 1 to 7, 9 and 10 to segments in the figures (Figures 1 to 7, 9 and 10, ISO 1656:2019 Figures 1 to 7, 9, and 10), because they contain licensed content;

--- Automatic and semi-automatic Kjeldahl nitrogen determination instrumental methods (see 6.2.5 and 6.4.2.2) have been added to the semi-micro method to provide new test methods;

--- Changed the amount of sulfuric acid standard titration solution and sodium hydroxide solution in the semi-micro method test steps (see 6.4.2.1, ISO 1656.

2019, 6.4.2.1), to meet the test conditions;

--- Changed "results and their units" to "test results" (see Chapter 8, Chapter 8 of ISO 1656:2019), because the results are only There are numerical values but no units.

The following editorial changes have been made to this document.

--- Changed the introduction and added instructions on semi-micro automatic and semi-automatic Kjeldahl nitrogen determination instrumental methods;

--- Change the description of boric acid in the principle to a note (see Chapter 4) because it does not belong to the content of the principle;

--- Added the CAS number of the reagent (see 5.1 and 6.1);

--- Change the mixed indicator solution to mixed indicator solution A (see 5.1.7 and 6.1.7.1, 5.1.8 and 6.1.8);

---Change "c(H₂SO₄)" to "c(1/2H₂SO₄)";

--- Changed Appendix A (informative).

Introduction

The purpose of this document is to determine the nitrogen content of natural rubber by the Kjeldahl method using a non-toxic catalyst (catalyst that does not contain selenium).

The method is simple, safe, and environmentally friendly, and does not require additional analytical instruments.

The method presented in the previous version of this document has the advantages of being simple, accurate, using conventional instrumentation, and being low-cost.

Selenium or selenium salts are harmful to the environment and people.

In the Rubber Products Working Group (RPBWG/ACCSQ) of the Advisory Committee on Standards and Quality Activities of the Association of Southeast Asian Nations (ASEN), Vietnam has studied the above situation and finally found a suitable catalyst mixture to replace selenium.