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

GB/T 15683-2025

Replacing GB/T 15683-2008

**Inspection of grain and oils - Determination of amylose content
in rice**

粮油检验 大米直链淀粉含量的测定

(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 15683-2008 "Determination of Amylose Content in Rice".

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

- a) The scope of application has been changed (see Chapter 1, Chapter 1 of the 2008 edition);
- b) The reagents were changed (see Chapter 5, Chapter 5 of the 2008 edition) and the sources of potato amylose and amylopectin standards were added. Source (see 5.8);
- c) Added ultrasonic degreasing method, drying oven moisture balance method and magnetic stirring dispersion method (see 6.1); changed the pullulan standard Preparation steps of standard products (see 6.2, 5.8 of the 2008 edition);
- d) The instruments and equipment have been changed (see Chapter 7, Chapter 6 of the 2008 edition);
- e) Sampling was deleted (see Chapter 7 of the 2008 edition);
- f) The sample preparation has been changed (see Chapter 8, 8.1 of the 2008 edition);
- g) The test steps have been changed (see Chapter 9, 8.2 to 8.5 of the 2008 edition);
- h) Added test data processing (see Chapter 10);
- i) The precision has been changed (see Chapter 11, Chapter 10 of the 2008 edition);
- j) Added non-skimming method (see Chapters 12 to 18);

k) Deleted the test report (see Chapter 11 of the 2008 edition);

l) Change the preparation method of potato amylose standard to the normative content of potato amylose standard preparation (see Appendix

C.2008 Edition), added reagents, instruments and procedures for the preparation of potato amylose standards (see C.1, C.2, C.3).

This document is modified to adopt ISO 6647-1:2020 "Determination of amylose content in rice - Part 1: Determination of amylose content in rice using methanol defatting procedure" Spectrophotometric method for the determination of amylose content in rice using calibration solutions of potato amylose and glutinous rice amylopectin" and ISO 6647-2:2020 "Determination of amylose content in rice Part 2: Routine spectrophotometric method using rice standards for calibration without defatting.

Compared with ISO 6647-1:2020 and ISO 6647-2:2020, this document has many structural adjustments. See Appendix A for a comparison table of numbering changes.

This document has many technical differences compared with ISO 6647-1:2020 and ISO 6647-2:2020.

The margin positions are indicated by a single vertical line (|). A list of these technical differences and their reasons is given in Appendix B. The following editorial changes were made to this document.

--- In order to coordinate with the existing standards, the name of the standard is changed to "Determination of Amylose Content in Rice for Grain and Oil Inspection";

--- Added notes in 6.1.1, 9.2.1, 9.2.2 and 16.4;

--- Appendix E adds the conditions and precision requirements for the technical route.

1 Scope

This document describes a method for the determination of the amylose content in rice, both defatted and non-defatted.

Both the defatted and non-defatted methods in this document are applicable to rice with an amylose content higher than 5% (by mass fraction).

The amylose content of other cereals is determined by the defatting method. This document does not apply to cooked rice.

2 Normative references

The contents of the following documents constitute the 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.

GB 5009.3 National Food Safety Standard Determination of Water Content in Food

GB 5009.9 National Food Safety Standard Determination of Starch in Food

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and definitions

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

4 Principle of degreasing method

The sample was crushed, defatted, and the water content was balanced before dispersion in sodium hydroxide solution. Iodine reagent was added to a certain amount of sample dispersion.

The absorbance of the color developing solution was measured at 720 nm by a photometer. A standard curve was drawn using a mixed standard sample of potato amylose and amylopectin. Line, external standard method for quantification.

5 Degreasing reagents and materials

Unless otherwise specified, all reagents used in this method are analytically pure and water is grade 2 or above as specified in GB/T 6682.

5.1

Methanol (CH_3OH).

5.2 95% (volume fraction) ethanol ($\text{CH}_3\text{CH}_2\text{OH}$).

5.3

Sodium hydroxide solution (0.09 mol/L). weigh 0.36 g of sodium hydroxide, slowly add 60 mL of water, dissolve, and dilute with water to 100mL, mix well.

5.4

Sodium hydroxide solution (1.0 mol/L). weigh 4.00 g of sodium hydroxide, slowly add 60 mL of water, dissolve, and dilute with water to 100mL, mix well.

5.5

Sodium hydroxide solution (3 g/L). weigh 0.30 g of sodium hydroxide, slowly add 60 mL of water, and dilute to 100 mL with water after dissolving. Mix well.