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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 12766-2026

Replacing GB/T 12766-2008

Animal fats and oils - Determination of melting point

动物油脂 熔点测定

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part

1.Rules for the structure and drafting of standardizing documents". This document replaces GB/T 12766-2008 "Animal fat and oil - Determination of melting point". Compared with GB/T 12766-2008, the main technical changes, apart from structural adjustments and editorial modifications, are as follows: - MODIFY the principle (see

4.1 of this document; Clause 4 of the 2008 edition); - ADD the reagents and materials (see

4.2 of this document); - MODIFY the instruments and equipment (see

4.3 of this document; Clause 5 of the 2008 edition); - MODIFY the sample preparation (see

4.4 of this document; Appendix A of the 2008 edition); - MODIFY the analytical procedure (see

4.5 of this document; Clause 7 of the 2008 edition); - DELETE the calibration (see Clause 8 of the 2008 edition); - ADD the expression of analytical results (see

4.6 of this document); - MODIFY the precision (see

4.7 of this document; Clause 9 of the 2008 edition); - ADD the melting point apparatus method (see Clause 5 of this document). This document was proposed by Ministry of Agriculture and Rural Affairs of the People's Republic of China. This document shall be

under the jurisdiction of National Technical Committee on Slaughter Processing of Standardization Administration of China (SAC/TC 516). Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights. Drafting organizations of this document. China Meat Food Comprehensive Research Center; Fujian Yaming Food Co., Ltd.; Linyi Jinluo Wenrui Food Co., Ltd.; Zhongnong Kangzheng Technology Service Co., Ltd.; Xiamen Yinxiang Group Co., Ltd.; Ningxia Agricultural Product Quality Standards and Testing Technology Research Institute; Hanon Advanced Technology Group Co., Ltd.; Beijing Ershang Meat Food Group Co., Ltd.; China Animal Disease Prevention and Control Center (Slaughter Technology Animal fats and oils - Determination of melting point

1 Scope

GB/T 12766-2026 is the Chinese national standard covering the melting point of an animal fat - the figure that identifies lard, tallow or poultry fat and that reveals whether one has been blended with another or with a vegetable oil. It replaces GB/T 12766-2008. It was issued on 27 February 2026 and has been in force since 1 September 2026, replacing GB/T 12766-2008. The document is under the responsibility of the Ministry of Agriculture and Rural Affairs. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the determination of melting point of animal fats and oils that solidify at room temperature using capillary visual inspection method and melting point apparatus method. This document applies to the determination of melting point of animal fats and oils that solidify at room temperature.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 15687 Animal and vegetable fats and oils - Preparation of test sample

3 Terms and definitions

There are no terms and definitions to be defined in this document.

4 Capillary visual inspection method

4.1 Principle Under ambient conditions not exceeding 25 °C, immerse a capillary tube containing a solidified fat and oil column in water to a specified depth, heat at a specified rate, observe the temperature at which the fat and oil column begins to rise within the capillary tube; this temperature is the melting point.

4.2 Reagents and materials Unless otherwise specified, all reagents used are chemically pure, and the test water shall comply with the provisions for grade 3 water in GB/T 6682.

4.2.1 Reagents Acetone (CH3COCH3).

4.2.2.1 Chromic acid cleaning solution (

0.928 mol/L). Dissolve 20 g of potassium dichromate in 40 mL of distilled water, heat to approximately 60 °C to dissolve it. While stirring, slowly add 400 mL of concentrated sulfuric acid. Mix thoroughly, and after cooling, transfer to a cleaning solution bottle for later use.

4.2.2.2 Preparation of ice-brine. Weigh 15 g of sodium chloride into a 250 mL beaker, add 100 mL of distilled water, and stir well. Add some ice cubes to maintain the temperature of the ice-brine at -12 °C ~ -10 °C.

4.2.3 Materials Ice packs. Approximately 8 cm x 10 cm.

4.3 Instruments and equipment

4.3.1 Electric drying oven Capable of maintaining a temperature at 25 °C ~ 100 °C.

4.3.2 Constant temperature water bath Capable of maintaining a temperature at 25 °C ~ 100 °C.

4.3.3 Capillary tube Homogeneous, thin-walled tube with open ends; inner diameter

0.90 mm ~

1.20 mm, outer diameter

1.80 mm, wall thickness

0.15 mm ~

0.30 mm, length

70.00 mm. Before use, the capillary tube shall be thoroughly cleaned sequentially with chromic acid cleaning solution, water, and acetone, and then dried in an oven.

4.3.4 Mercury thermometer Calibrated, with 0.1 °C graduations, scale range 0 °C ~ 100 °C.

4.3.5 Cooling device

4.3.5.1 Constant temperature cold water bath or refrigerator with temperature controlled at 4 °C ~ 10 °C.

4.3.5.2 Ice-brine with temperature controlled at -12 °C ~ -10 °C.

4.3.6 Electric heating source Heating rate shall reach 3 °C/min ~ 4 °C/min, using heating equipment or devices with adjustable heating rate, such as a heated magnetic stirrer.

4.4 Sample preparation Test samples shall be prepared according to GB/T 15687.

4.5 Analytical procedure

4.5.1 Capillary tube sample loading Weigh approximately 20 g of the fat and oil sample (see 4.4) into a beaker, place it in an electric drying oven or constant temperature water bath at a temperature 5 °C ~ 10 °C higher than its melting point to allow it to melt quickly. After stirring thoroughly, take two capillary tubes, draw the sample into them to a height of 10 mm ± 2 mm, ensuring the height is consistent and avoiding the intake of air bubbles. Quickly wipe away any sample adhering to the outer surface of the capillary tubes with filter paper, and immediately place the side of the capillary tube sample loading section against an ice pack to cool for a few seconds until the sample solidifies. Then, place the capillary tubes in a constant temperature cold water bath or refrigerator at 4 °C ~ 10 °C (see 4.3.5.1) for approximately 16 h, or in ice-brine at -12 °C ~ -10 °C (see 4.3.5.2) for 5 min.

4.5.2 Determination

4.5.2.1 Quickly secure the two cooled capillary tubes containing the sample and the thermometer to both sides of the thermometer with rubber bands, ensuring the fat and oil column near the bottom of the capillary tube is flush with the bottom of the thermometer to prevent body heat from being transferred to the fat and oil sample.

4.5.2.2 Pour half cup of distilled water that has been pre-boiled and cooled to 15 °C to a beaker, then suspend the thermometer with the capillary tubes secured in it in the water using an iron stand, ensuring the capillary tubes and the bottom of the thermometer are submerged 30 mm below the water surface.

4.5.2.3 Adjust the initial temperature of the electric heating source to 25 °C (below the expected melting point), stir slowly with a stirrer to make the temperature uniform, and let the water temperature rise slowly, so that the heating rate is 3 °C/min ~ 4 °C/min at the beginning of heating, and slows down to 0.5 °C/min when approaching the melting point.

4.5.2.4 Record the temperature at which the fat and oil column in each capillary tube begins to rise. Calculate the average value of the two temperatures and take this average value as the result of one determination.