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

GB/T 26626-2025

Replacing GB/T 26626-2011

**Animal and vegetable fats and oils - Determination of water
content - Karl Fischer method (pyridine free)**

动植物油脂 水分含量测定 卡尔费休法（无吡啶）

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document supersedes GB/T 26626-2011 "Determination of Moisture Content in Animal and Vegetable Oils - Karl Fischer Method (Pyridine-Free)" and is consistent with...

Compared with GB/T 26626-2011, apart from structural adjustments and editorial changes, the main technical changes are as follows.

---Added scope of inapplicability (see Chapter 1);

---The range of water quality required for titration has been changed (see 9.3.5, 9.3.5.3 in the 2011 edition).

This document adopts ISO 8534:2017 "Determination of moisture content in animal and vegetable oils - Karl Fischer method (without pyridine)".

The following minimal editorial changes have been made to this document.

---The URLs for ISO and IEC terminology data have been removed;

---The subscripts of quantity symbols in the formula have been removed;

---The reference year numbers for the test report details have been changed.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the National Food and Strategic Reserves Administration.

This document is under the jurisdiction of the National Technical Committee on Standardization of Grain and Oil (SAC/TC270).

Introduction

There are two different methods for determining the water content in animal and vegetable oils using the Karl Fischer method. This document details the Karl Fischer volumetric method, which is applicable to...

For testing samples with high water content (1 mg to 100 mg).

Appendix B details the coulometric titration method, which is more sensitive than the volumetric method and is suitable for determining water content in low concentrations (10 µg to 10 mg).

sample.

Determination of moisture content in animal and vegetable oils Karl Fischer process (pyridine-free)

1 Scope

This document describes a Karl Fischer (pyridine-free) method for determining the moisture content in animal and vegetable oils.

This document applies to the determination of moisture content in animal and vegetable oils.

This document does not apply to the determination of moisture content in milk and dairy products (or oils extracted from milk and dairy products).

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

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Note: GB/T 15687-2008 Preparation of animal and vegetable oil samples (ISO 661:2003, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

water content

Under the conditions specified in this document, the number of grams of water contained in a 100g sample is determined.

Note: Moisture content is expressed as a mass fraction.

4 Principles

The dissolved fats were titrated with iodine, and sulfur dioxide (SO₂) was oxidized by iodine in the presence of water. The reaction equation is as follows.

$$\text{H}_2\text{O} + \text{I}_2 + \text{SO}_2 + \text{CH}_3\text{OH} + 3\text{RN} \rightarrow [\text{RNH}]\text{SO}_4\text{CH}_3 + 2[\text{RNH}]\text{I}$$
 (1) Alcohols react with sulfur dioxide and nitrogen-containing ammonia (RN) to form an intermediate, methylsulfite, which is subsequently oxidized by iodine to methylsulfate.

The salt oxidation reaction consumes water in the sample, and the endpoint is monitored by potential.

5 Reagents

Warning. Local regulations for the handling of hazardous materials must be followed. Relevant technical, organizational, and personal safety regulations must also be followed.

5.1 Karl Fischer reagent

5.1.1

Volumetric Karl Fischer reagents are classified into single-component and two-component reagents. Pre-prepared Karl Fischer reagents can be used.