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

GB/T 46855-2025

**Vegetable fats and oils - Determination of the degradation
products of chlorophylls a and a'(pheophytins a, a'and
pyropheophytins)**

植物油脂 叶绿素a和叶绿素a降解产物的测定（脱镁叶绿素a，a'和焦脱镁叶绿素
）

(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 is equivalent to ISO 29841:2009 "Determination of chlorophyll a and chlorophyll a' degradation products from vegetable oils (pheophytin)".

a,a' and pyrophyllin).

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

---Incorporates the amendments to ISO 29841:2009/Amd1.2016, with the relevant clauses placed in vertical margins.

The double lines (||) are used to indicate this.

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).

1 Scope

This document describes the determination methods for chlorophyll degradation products pheophytin a,a' and pyropheophytin a.

This document applies to vegetable oils.

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.

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.

products)

The mass of pyrophyll a is divided by the sum of the masses of chlorophyll a, a' and pyrophyll a.

4 Principles

Using microsilica column chromatography, pigments (chlorophyll, pheophytin a and a', pyropheophytin a) and most lipids (glycerol) were separated.

(Triesters) were separated. The eluent was analyzed using RP18-HPLC, and the separated components were analyzed by UV detection at 410 nm.

monitor.

The analysis of certain vegetable oils (such as rapeseed oil) requires higher sensitivity and can be performed using a fluorescence detector with an excitation wavelength of 430 nm and an emission wavelength of [missing information].

It is 670nm long.

Alternatively, it can be determined directly using high-performance liquid chromatography (HPLC) equipped with a fluorescence detector as described in Appendix C.

5 Reagents

Warning---Please note the specific regulations for handling hazardous materials. Technical, organizational, and personal safety measures should be followed.

Unless otherwise stated, all reagents used are of analytical grade.

5.1

Chlorophyll a.

Note: Due to the lack of standard materials for pheophytin and pyropheophytin, chlorophyll a was used to produce these degradation products. Phthaphyllin is produced through the production of phytohemophyllin.

The chlorophyll solution was acidified; pyropheophyll requires additional heating (>100°C)[4].