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

GB/T 46745-2025

**Inspection of grain and oils - Determination of moisture, erucic
acid and oil content in rapeseed - Near-infrared method**

粮油检验 油菜籽水分、芥酸、含油量测定 近红外法

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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. 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). This document was drafted by: Hunan Provincial Grain and Oil Products Quality Monitoring Center, Optoelectronics (Hunan) Information Technology Co., Ltd., and Wuhan University of Light Industry. Xue, Wuhan Xingang Technology Co., Ltd., Yiyang High-tech Agricultural Development Co., Ltd., PerkinElmer Enterprise Management (Shanghai) Co., Ltd., Anhui Province Grain and Oil Product Quality Supervision and Testing Station, Hubei Provincial Grain and Oil Food Quality Supervision and Testing Center, Sichuan Provincial Grain Quality Monitoring Center, Guangxi Zhuang Autonomous Region The Inner Mongolia Autonomous Region Grain and Oil Quality Inspection Center, Guangdong Provincial Grain Science Research Institute Co., Ltd., Changde Municipal Grain and Oil Food Quality Testing Center, and China Grain Reserves Corporation (Sichuan) Quality Inspection Center Co., Ltd. The main drafters of this document are. Ni Xiaoying, Liu Hongfei, Mei Guang, Yang Jing, Shen Na, Chen Quling, Deng Shuhua, Fan Xiaoyong, Huang Wei, Zeng Kuijie, and Xiang Zhenhang. Tang Gang, Li Xing, Wu Anqi, Mao Qingxiu, Zhang Sihong, Gao Jin'e, Xiong Ran, Ni Shanshan, Yang Jun, Liu Bin, Hu Li, Tan Xiaowen, Peng Can, Zhang Dacheng, Li Guiyou Li Yueshuang, Wang Liang, Du Jun, Lin Hui, Liang Liushi, Hou Feifei, He Bang. Grain and oil testing. rapeseed moisture, erucic acid, Near-infrared method for oil content determination

1 Scope

GB/T 46745-2025 is the Chinese national standard covering reading three values off a rapeseed sample in one near-infrared scan - the moisture, the oil content that sets the price

and the erucic acid that decides whether the oil is food grade - with the calibration and its validation against the reference methods. First edition, under the National Food and Strategic Reserves Administration. In force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

This document describes a method for determining the moisture content, erucic acid content, and oil content of rapeseed using near-infrared spectroscopy. This document is applicable to the rapid detection of moisture content, erucic acid content, and oil content in rapeseed.

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.

GB 5009.168 National Food Safety Standard - Determination of Fatty Acids in Food

GB/T 5491 Sampling and Divided Sampling Methods for the Inspection of Grains and Oils

GB/T 5494 Grain Inspection. Inspection of Impurities and Defective Grains in Grains and Oilseeds

GB/T 14488.1 Determination of oil content in vegetable oilseeds

GB/T 14489.1 Determination of moisture and volatile matter content in oilseeds

GB/T 24895 General Rules for Calibration Model Verification and Network Management and Maintenance of Near-Infrared Analysis in Grain and Oil Inspection

3 Terms and Definitions

The terms and definitions defined in GB/T 24895 apply to this document.

4.Principles The absorption of near-infrared light is achieved by utilizing the overtone or combination vibrations of chemical bonds such as CH, NH, OH, and C-X contained in rapeseed. Harvesting characteristics were studied, and the correlation between near-infrared spectra of rapeseed and moisture content, erucic acid content, and oil content was established using chemometric methods. Simultaneous and rapid detection of moisture content, erucic acid content, and oil content in rapeseed.

5.Instruments and Equipment Near-infrared analyzer. equipped with a light source, spectrophotometer, detector, cooling or ventilation system, sample stage, measuring accessories, and supporting software. It should possess a self-diagnostic system to detect instrument noise, repeatability, wavelength/wavenumber accuracy, and precision. It should

have reliable positioning capabilities. A calibration model should be established according to Appendix A. Instruments incorporating near-infrared analysis networks for grains and oils should meet the requirements of GB/T 24895. Instruments without such networks... Instruments used in near-infrared analysis networks for grains and oils should be verified and qualified in accordance with the relevant provisions on calibration model verification in GB/T 24895.

6 Sample Preparation

6.1 Sampling and fractionation shall be carried out in accordance with the provisions of GB/T 5491 to obtain test samples.