

ICS 67.050
CCS B 20



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

GB/T 46117-2025

**Inspection of grain and oils - Determination of water-soluble
protein in soya bean**

粮油检验 大豆水溶性蛋白质含量的测定

Issued on: August 29, 2025

Implemented on: March 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and Definitions

4 Principles

5 Reagents and Materials

5.1 Reagents

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.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was submitted by the State Administration of Grain and Material Reserves.

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

This document was drafted by: Nanjing University of Finance and Economics, China National Grain and Oils Corporation Zhenjiang Quality Inspection Center Co., Ltd., Heilongjiang Provincial Grain Quality and Safety Monitoring and Technology Technical Center, China National Grain and Oils Corporation Chengdu Storage Research Institute Co., Ltd., Jiangsu Grain and Oils Quality Monitoring Center, COFCO Donghai Grain and Oils Industry (Zhangjiagang) Co., Ltd.

Company, Fangchenggang Aojia Grain and Oil Industry Co., Ltd.

The main drafters of this document are Yuan Jian, Zhou Zhou, Ji Lanyang, Zhang Liuping, Xing Changrui, Yang Chao, Jia Jirong, Dong Hua, Qin Jingwen, Li Yuanxin, and Zhang Hui.

Grain and oil inspection-Determination of water-soluble protein content in soybeans

1 Scope

This document describes the principle of determining the content of water-soluble protein in soybeans, and specifies the reagents and materials, instruments and equipment, analytical

procedures, results, Calculation and precision.

This document is applicable to the determination of water-soluble protein content in soybeans.

2 Normative references

GB/T 601

GB/T 5491

GB/T 6682

3 Terms and Definitions

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

4 Principles

Water-soluble protein in soybeans is extracted with water, and nitrogenous compounds are decomposed under catalytic heating conditions, and the generated ammonia combines with sulfuric acid to form Ammonium sulfate, add alkali to distill to release ammonia, absorb it with boric acid and titrate it with sulfuric acid or hydrochloric acid standard solution, calculate the nitrogen content based on the acid consumption The amount of water-soluble protein in soybeans can be calculated by multiplying it by the conversion coefficient.

5 Reagents and Materials

Unless otherwise stated, all reagents used in this document were of analytical grade.

5.1 Reagents

5.1.1 Copper sulfate pentahydrate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$).

5.1.2 Potassium sulfate (K_2SO_4). 5.1.3 Sulfuric acid (H_2SO_4).

5.1.4 Hydrochloric acid (HCl). 5.1.5 Boric acid (H_3BO_3).

5.1.6 Methyl red ($\text{C}_{15}\text{H}_{15}\text{N}_3\text{O}_2$).

5.1.7 Bromocresol green ($\text{C}_{21}\text{H}_{14}\text{Br}_4\text{O}_5\text{S}$).

5.1.8 Sodium hydroxide (NaOH).