ICS 67.050
CCS X 04

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18525.2-2026

Replacing GB/T 18525.2-2001

Irradiation processing practice for agricultural products - Part 2: Cereals and their products

农产品辐照工艺 第2部分：谷物及其制品

Issued on: May 25, 2026 **Implemented on: December 1, 2026**

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

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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 Part 2 of GB/T 18525 "Irradiation Processes for Agricultural Products". GB/T 18525 has already published the following parts.

1.Legumes and their products;

2.Cereals and their products;

---Irradiation process for insect control and mold prevention in dried shiitake mushrooms (GB/T 18525.5);

6.Dehydrated Vegetables;

7.Spices and Seasonings;

8.Cooked Meat Products;

11.Dried Longan;

12.Pollen. This document replaces GB/T 18525.2-2001 "Irradiation Pesticide Process for Cereal Products". Compared with GB/T 18525.2-2001, except for the structure... Aside from adjustments and editorial changes, the main technical changes are as follows:

a) The scope has been changed (see Chapter 1, Chapter 1 of the.2001 edition);

b) Added terms and definitions for "process dosage," "dosage non-uniformity," and "dosage distribution test" (see 3.4-3.6), and changed "grains." Terms and definitions for "and its products", "minimum effective dose", and "maximum tolerated dose" (see 3.1-3.3,.2001

edition 3.1-3.3). 3.3);

c) The requirements for "radiation devices" have been changed (see Chapter 4,

5.1 of the.2001 edition);

2 Cereals and their products

1.Scope This document specifies the irradiation equipment, pre-irradiation requirements, irradiation process, post-irradiation procedures, and recording for the irradiation of grains and their products for insecticidal and bactericidal purposes. And document management requirements. This document applies to the irradiation of grains and foods made from grains that have undergone primary or advanced processing for pest and bacteria control. deal with.

4 Irradiation device

4.1 Irradiation devices shall comply with relevant provisions such as GB/T 17568 and GB/T 25306.

4.2 The irradiation device shall be a gamma-ray device that produces 60Co or 137Cs radionuclides, or an accelerator with an electron beam energy not exceeding

10 MeV. The device and the X-ray device that meets the relevant standards.

5.1 Packaging and Storage

5.1.1 Packaging specifications shall meet the requirements of irradiation processing, and the packaging materials shall not cause secondary pollution to the product after irradiation.

5.1.2 It should be stored under conditions that meet the product requirements, such as temperature and humidity.

5.1.3 Irradiation should be carried out as soon as possible after the screening and packaging of grains and their products to prevent microbial contamination and the development and reproduction of pests.

5.2 Process Determination

5.2.1 Dose distribution tests should be conducted based on the characteristics of grains and their products, such as type, packaging, and use, to determine the location of monitoring dosimeters.

5.2.2 The minimum effective dose range for insecticide is 0.3kGy to 0.4kGy, and the maximum tolerated dose range for the product is 0.5kGy to 1.0kGy. The sterilization process dosage should be between

10.0 kGy, and the specific dosage can be determined according to the actual irradiation purpose and quality.

5.2.3 The loading mode shall be determined according to the packaging specifications of the irradiated grains and their products, the type of irradiation device and irradiation container, and the loading mode shall be determined accordingly. The product dose non-uniformity under the formula should meet the irradiation process dose requirements.

5.2.4 Equipment operating parameters should be set according to process dosage and loading mode.

5.2.5 Irradiation process documentation shall be developed, including but not limited to process dose, loading mode, dose measurement system, and equipment operating parameters. Count and monitor the location of the dosimeter. Dosing documentation requirements are consistent with the relevant standards.

6 Irradiation process

6.1 Irradiation Operation According to the irradiation process documentation, the equipment operating parameters and loading mode were set, and the irradiation was organized. The irradiation device, related parameters, and online production were also monitored. The product circulation process is monitored and recorded.

6.2 Dose Monitoring According to the irradiation process documentation, monitoring dosimeters are deployed for measurement and recording. The dosimeter measurement system is selected according to GB/T 16640. Select and regularly trace back to the national absorbed dose standard.

6.3 Interruption Assessment If the irradiation process is interrupted, the impact on the absorbed dose of the product should be assessed, and the subsequent processing procedures should be recorded.

6.4 Repeated irradiation Repeated irradiation may be performed to control pest infestation. The cumulative dose should not exceed the maximum tolerable dose of the grain (see 5.2.2).

7 Post-irradiation management

7.1 Storage Irradiated and unirradiated products should be stored separately. The storage environment should meet the temperature, humidity, and other conditions required by the product.

7.2 Release

7.2.1 The irradiated product can only be released after confirming that the absorbed dose meets the process dose requirements and that there are no other abnormalities in the

irradiation process.

7.2.2 When non-compliance with process dosage requirements or other non-conformities occur, the cause should be investigated in accordance with the non-conforming product management procedure. The process includes analysis, development of corrective and preventative measures, regular inspections and follow-ups, and documented records.

8.Record and File Management All records and documents should be properly kept. For products with a specified shelf life, they should be retained for at least six months after the expiration date; for products without a clearly defined shelf life, at least... Retained for 2 years.