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GB/T 18525.1-2026

Replacing GB/T 18525.1-2001

Irradiation processing practice for agricultural products - Part 1: Beans and their products

农产品辐照工艺 第1部分：豆类及其制品

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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 1 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 18525.1-2001 "Irradiation Pesticide Process for Legumes". Compared with GB/T 18525.1-2001, the main differences are in the structural adjustments. Aside from 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); changed "legumes" Terms and definitions for "and its products", "minimum effective dose", and "maximum tolerated dose" (see 3.1-3.3,.2001

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edition 3.1-3.3);

c) The requirements for "irradiation facilities" have been changed (see Chapter 4,

5.1 of the.2001 edition);

1 Scope

GB/T 18525.1-2026 is the Chinese national standard covering the irradiation of beans and bean products - the dose that kills the insects that infest stored pulses without cooking the seed or spoiling its cooking quality. The standard fixes the dose range, the packaging and loading, the process control and dosimetry, and the records that make an irradiated lot traceable. It replaces GB/T 18525.1-2001 and takes effect on 1 December 2026, one of the twelve parts of the GB/T 18525 series revised together. It was issued on 25 May 2026 and takes effect on 1 December 2026, replacing GB/T 18525.1-2001. The document is under the responsibility of the Ministry of Agriculture and Rural Affairs. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

1.Scope This document specifies the irradiation equipment, pre-irradiation requirements, irradiation process, and post-irradiation treatment for insecticidal and bactericidal purposes involving legumes and their products. Record and file management. This document applies to irradiation treatment for insecticidal and sterilization of legumes and foods made from legumes through primary or deep processing. This document does not apply to legumes used for sprout production.

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

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packaging of beans 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 beans and their products, such as type, packaging, and uses, to determine the location of the monitoring dosimeter.

5.2.2 The minimum effective dose range for insecticide application is

0.3 kGy to

0.4 kGy, and the maximum tolerated dose is

2.5 kGy. Sterilization process dosage. The appropriate range is

10.0 kGy, which can be determined based on the actual irradiation purpose and quality.

5.2.3 The loading mode should be determined based on the packaging specifications of irradiated beans and their products, the form of the irradiation device and irradiation container, and this loading mode... 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, equipment operating parameters, and dose measurement system. The location of the monitoring dosimeter is integrated.

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 Legumes with low moisture content can be repeatedly irradiated to

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control pest infestation, but the cumulative dose should not exceed the tolerance dose of the legumes (see [reference needed]). 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. Products with a shelf life should be kept for at least 6 months after the expiration date. Products without a clearly defined shelf life should be kept for at least [amount not specified]. Retained for 2 years.

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