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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 23527.4-2025

Quality requirements for enzyme preparations - Part 4: Immobilized glucose isomerase preparations

酶制剂质量要求 第4部分：固定化葡萄糖异构酶制剂

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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 is required. This document specifies the technical requirements for food quality. For food safety requirements, please refer to relevant laws, regulations, policies and food safety standards. document. This document is part 4 of GB/T 23527 "Quality requirements for enzyme preparations". GB/T 23527 has been published in the following parts.

1.Protease preparations;

2.Lipase preparations;

3.Amylase preparations;

4.Immobilized glucose isomerase preparations. This document replaces GB/T 23533-2009 "Immobilized glucose isomerase preparation". Compared with GB/T 23533-2009, except for the structure In addition to adjustments and editorial changes, the main technical changes are as follows:

--- Changed "Scope" (see Chapter 1, Chapter 1 of the.2009 edition);

--- Changed the terms and definitions of "glucose isomerase" and "immobilized glucose isomerase preparation" (see 3.1, 3.2,.2009 edition) 3.1, 3.2);

--- Deleted "Health requirements" (see

4.4 of the.2009 edition);

--- The factory inspection items have been changed (see 6.3.1.2,

6.3.1.2 of the.2009 edition);

--- Changed the judgment rules (see 6.4.2,

6.4.2 of the.2009 edition);

1 Scope

GB/T 23527.4-2025 sets the quality requirements for immobilised glucose isomerase preparations. This is the enzyme that converts glucose to fructose and thereby makes high fructose corn syrup, and it is used in one of the largest continuous enzymatic processes in industry: the immobilised enzyme is packed in columns through which syrup flows for months, so what the buyer is really purchasing is not activity but productivity, the total kilograms of fructose the charge will produce before its activity decays below the point where the column must be replaced. The standard sets the requirements accordingly: the appearance and particle characteristics of the immobilised preparation, the initial activity and its determination, the operational stability and half-life under defined conditions, the pressure drop and mechanical strength of the bed, the microbiological and heavy metal limits and the absence of the residues that a food-contact preparation must not carry. It then gives the test methods, the inspection rules and the packaging, transport and storage. It takes effect on 1 March 2026.

This document specifies the requirements, inspection rules and marking, packaging, transportation and storage requirements for immobilized glucose isomerase preparations, and describes Corresponding test methods. This document applies to the production, inspection and sales of immobilized glucose isomerase preparations.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 191 Pictorial markings for packaging, storage and transportation

GB/T 601 Preparation of standard titration solutions for chemical reagents

GB/T 602 Preparation of standard solutions for determination of impurities in chemical reagents

GB/T 603 Preparation of preparations and products used in chemical reagent test methods

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Glucose isomerase An enzyme that converts D-glucose into D-fructose.

Note. It is made from starch (or sugar) as raw material through microbial fermentation and purification.

3.2 Immobilized glucose isomerase preparations Glucose isomerase preparation immobilized on a carrier.

3.3 Glucose isomerase activity Under the specified reaction conditions, 1g of glucose isomerase converts glucose into 1mg of fructose in 1h, which is 1 unit of enzyme activity.

Note. Expressed in "U/g".

3.4 Production capacity Under suitable working conditions, when the enzyme activity drops to 10% of the original activity, 1 kg of immobilized enzyme can convert absolute dry glucose into absolute Amount of dried fructose.