ICS 67.180.20
CCS X 31

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 20882.7-2025

Replacing GB/T 23529-2009

Quality requirements for starch sugar - Part 7: Trehalose

淀粉糖质量要求 第7部分：海藻糖

Issued on: April 25, 2025 **Implemented on: May 1, 2026**

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

Table of Contents

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.

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 7 of GB/T 20882 "Quality requirements for starch sugars". GB/T 20882 has been published in the following parts.

- Part 1: Edible glucose;

- Part 2: Glucose syrup (powder);

- Part 3: Crystalline fructose and solid fructose;

- Part 4: Fructose syrup;

- Part 5: Maltose;

- Part 6: Maltodextrin;

- Part 7: Trehalose.

This document replaces GB/T 23529-2009 Trehalose. Compared with GB/T 23529-2009, except for structural adjustments and editorial changes, In addition, the main technical changes are as follows.

- Changed the chemical name and relative molecular mass of crystalline trehalose and the molecular formula, structural formula and relative molecular mass of anhydrous trehalose Quality (see Chapter 4, Chapter 4 of the 2009 edition);

- Changed the sensory requirements (see 6.1, 6.1 of the 2009 edition);

- Deleted the hygiene requirements (see 6.3 of the 2009 edition);

- Added general requirements for test methods (see 7.1);

- Added detection methods for impurities (see 7.2);

- Changed the test method for trehalose content (see 7.3, 7.2 of the 2009 edition);

- Changed the sample weight in the ignition residue test method (see 7.6.2, 7.4.2 of the 2009 edition);

- Changed the sampling requirements (see 8.2, 8.3 of the 2009 edition);

- Changed some requirements for marking, packaging, transportation and storage (see Chapter 9, Chapter 9 of the 2009 edition).

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 proposed and coordinated by the National Food Industry Standardization Technical Committee (SAC/TC64).

This document was drafted by: China Food Fermentation Industry Research Institute Co., Ltd., China Bio-fermentation Industry Association, Shandong Fuyang Biotechnology Co., Ltd., Jilin Aogu Biotechnology Co., Ltd., Shuangqiao (Xiamen) Co., Ltd., Shanghai Changse Trading Co., Ltd., Bowling Bio Co., Ltd., By-Health Co., Ltd., Ningbo University, Huai'an Food and Drug Inspection Institute, Mattel Technology (Qingdao) Co., Ltd.

Co., Ltd., Zhejiang Shanshanjia Food Industry Development Co., Ltd.

The main drafters of this document are: Peng Xuefei, Feng Zhihe, Zhao Wei, Hao Yunfei, Lian Junpeng, Chen Sheng, Li Peigong, Cai Liangping, Shao Xingfeng, Su Jing, Liu Ming, Wu Dan, Qi Danping, Wang Na, Lin Pingping, Wang Hongxia, Liu Wende, Wei Yingying, Liu Yang, Cao Mengsi, Huang Ling, Chen Nannan, Wang Lin, and Wang Ping.

The previous versions of this document and the documents it replaces are as follows.

- First published in 2009 as GB/T 23529-2009;

- This is the first revision.

Introduction

Trehalose was first extracted from ergot fungus in rye by Wiggers in 1832, and then

fermented with yeast, maitake mushrooms, and Trehalose is extracted from cells or converted into starch by enzymes. China started industrial production in 2000.The sweetness of trehalose is equivalent to that of sucrose.

45%, with mild sweetness, refreshing taste, no aftertaste after eating, and very stable to heat and acid.

When sugar coexists with amino acids and proteins, it will not produce browning (Maillard reaction) even if heated; trehalose has low hygroscopicity and can be used even in relatively humid environments.

The degree of trehalose can reach 95% without moisture. In addition, trehalose also has the unique function of preventing starch aging, preventing protein denaturation, and inhibiting lipid oxidation.

It can be used as an excellent food ingredient, eaten directly or used as a food ingredient.

Raw sugar has the characteristics of being able to form a special protective film on the cell surface under harsh conditions such as high temperature, extreme cold, dryness and dehydration, effectively protecting the organism The molecular structure is not destroyed, so it can be widely used in various industries such as biological preparations, medicine, cosmetics and agriculture.

With the rapid development of the food fermentation industry, the types of starch sugars have diversified, the product quality has been improved, and the product variety has been enriched.

The industry technology has made great progress and development. The formulation of GB/T 20882 "Quality Requirements for Starch Sugar" is a standard for the product quality and inspection of starch sugar.

The normalization and standardization of testing methods is the basic work to regulate the industry order of starch sugar and its related products and promote industrial development.

GB/T 20882 "Quality Requirements for Starch Sugar" is planned to consist of seven parts.

- Part 1: Edible glucose. The purpose is to improve the product quality of the edible glucose industry.

- Part 2: Glucose syrup (powder). The purpose is to improve the product quality of glucose syrup (powder) industry.

- Part 3: Crystalline fructose and solid fructose-glucose. The purpose is to improve the product quality of the crystalline fructose and solid fructose-glucose industries.

- Part 4: Fructose-glucose syrup. The purpose is to improve the product quality of the fructose-glucose syrup industry.

- Part 5: Maltose. The purpose is to improve the product quality of the maltose industry.

- Part 6: Maltodextrin. The purpose is to improve the product quality of the maltodextrin industry.

- Part 7: Trehalose. The purpose is to improve the product quality of the trehalose industry.

Starch sugar quality requirements Part 7: Trehalose

1 Scope

This document defines the terminology and definition of trehalose and gives the chemical name, molecular formula, structural formula and relative molecular mass of trehalose.

It specifies the information and product classification of trehalose, stipulates the requirements, inspection rules, marking, packaging, transportation and storage, and describes the corresponding test methods.

This document applies to the production, inspection and sale of trehalose produced by enzymatic conversion.

2 Normative references

GB/T 191

GB/T 601

GB/T 602

GB/T 603

GB/T 6682

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Trehalose;alpha-D-glucopyranosyl-alpha-D-glucopyranoside

A non-reducing disaccharide composed of two pyranose ring glucose molecules linked by a 1,1 glycosidic bond.

Note. Anhydrous trehalose is a product without crystal water, and crystalline trehalose is a product with two crystal waters.

4.1 Chemical name

Anhydrous trehalose. alpha-D-pyranose-alpha-D-pyranose glucoside.

Crystalline trehalose. alpha-D-pyranose-alpha-D-pyranose glucoside dihydrate.