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

GB/T 23528.2-2021

Replacing GB/T 23528-2009

**Quality requirements for oligosaccharides - Part 2:
Fructooligosaccharide**

低聚糖质量要求 第2部分：低聚果糖

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Standardization Administration of China**

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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 of Standardization Documents" drafted: This document is one of the series of standards "Quality Requirements for Oligosaccharides": The following parts of this series of standards have been published:

--- GB/T 35920 General technical rules for oligosaccharides;

2 Quality Requirements for Oligosaccharides Part 2: Fructooligosaccharides;

---GB/T 20881 Isomaltooligosaccharides: This document replaces GB/T 23528-2009 "Fructooligosaccharides": Compared with GB/T 23528-2009, the main technical changes are as follows:

--- Added some terms and definitions (see Chapter 3, Chapter 3 of the:2009 edition);

--- Added the classification of "by production raw materials" (see 5:1);

--- Changed the requirements for dry matter and chromaticity of physical and chemical requirements (see 6:2, 5:2 of the:2009 edition);

--- Changed the "conductive ash content" of the physical and chemical requirements to "ash content" and the corresponding measurement method (see 6:2, 5:2 of the:2009 edition);

--- Added the determination methods "high performance liquid chromatography (external standard calibration method)" and "high performance ion exchange chromatography" for the content of fructooligosaccharides (see 7:3:2, 7:3:3);

--- Deleted the original appendix A, appendix B, appendix C, added appendix A high-performance liquid chromatography determination of fructooligosaccharide standard and samples The chromatogram of the standard and the sample chromatogram of the determination of fructooligosaccharides by high-efficiency ion exchange chromatography in Appendix B, and the chromatogram of the beverage and wine in Appendix C Determination of fructooligosaccharide content (see Appendix A, Appendix B, Appendix C, Appendix A, Appendix B, Appendix C of the:2009 edition): Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility

for identifying patents: This document is proposed and managed by the National Standardization Technical Committee of Food Industry (SAC/TC64): This document is drafted by: Quantum Hi-Tech (China) Biological Co., Ltd., Baolingbao Biological Co., Ltd., Fengning Ping An Hi-Tech Co., Ltd. Industry Co., Ltd., Fanmi Neng Special Sugar Co., Ltd., Shandong Bailong Chuangyuan Biotechnology Co., Ltd., Shandong Fuxin Biotechnology Co., Ltd. Co., Ltd., Baiyin Xirui Biological Engineering Co., Ltd., Unicon (Beijing) Pharmaceutical Technology Service Co., Ltd., China Food Fermentation Industry Research Institute Co., Ltd., Perfect (China) Co., Ltd., Tiens Group Co., Ltd., Shijiazhuang Junlebao Dairy Co., Ltd., Beijing Sanyuan Food Co., Ltd. Co., Ltd., Hebei Food Inspection Research Institute, Shanghai Institute of Quality Supervision and Inspection Technology: The main drafters of this document: Liu Ming, Zeng Xianwei, Li Peigong, Qian Xiaoguo, Wei Yuanan, Huang Zhenhua, Dou Guangpeng, Chen Xiaoqiang, Hao Jingfeng, Yang Yun, Li Xiangdong, Cao Mengsi, Wang Xiangyang, Ouyang Daofu, Li Yueqi, Han Meina, Chen Lijun, Zhang Yan, Liu Jie, Wu Changqing, Du Yulan, Wang Yongzhi, Kang Zhiyuan, Zhang Guoyu, Zhu Wei, Wang Haotong, Li Yan, Wang Shijie: The previous versions of this document and its superseded documents are as follows:

---The first released version in:2009 is GB/T 23528-2009;

---This is the first revision:

With the rapid development of the food fermentation industry, the types of oligosaccharides have been diversified, and the product quality has been improved to a new level: Technology to species have made considerable development and progress: The formulation of GB/T 23528 "Quality Requirements for Oligosaccharides" is the product quality of oligosaccharides: The standardization and standardization of detection methods are the basic work to standardize the industry order of oligosaccharides and related products and promote the development of the industry: GB/T 23528 "Quality Requirements for Oligosaccharides" is proposed to consist of four parts:

--- Part 1: General technical rules for oligosaccharides;

1 Scope

China's national quality requirements for fructooligosaccharide. It is Part 2 of GB/T 23528 and specifies the terms and definitions, the product classification, the requirements, the test methods, the inspection rules and the labelling, packaging, transport and storage.

Fructooligosaccharide is a sugar the body cannot digest, and that is the entire point of it. It is a short chain of fructose units attached to a glucose, made either by enzymatic transfructosylation from sucrose or by partial hydrolysis of inulin from chicory or Jerusalem artichoke. Human digestive enzymes cannot break the bond between fructose units, so it passes intact into the colon, where the bifidobacteria and lactobacilli ferment it while most other gut organisms cannot - which is what makes it a prebiotic, and the reason it goes into infant formula, dairy products, functional beverages and supplements. It is also about half

as sweet as sucrose with a similar mouthfeel and contributes very few calories, so it does duty as a bulking sweetener. Both claims depend on the same number: the content of the actual oligosaccharides, which is what the product is bought for, against the residual glucose, fructose and sucrose left from the reaction, which are ordinary digestible sugars and which dilute both the prebiotic effect and the low-calorie claim. So the classification is by oligosaccharide purity, and the standard specifies that content and the individual sugars along with the dry matter, the pH, the ash, the colour and transmittance, the heavy metals and the microbiological limits. The distinction between the syrup and the powder forms is carried through, since they are handled and stored differently. Issued on 31 December 2021 and in force since 1 July 2022, it replaces GB/T 23528-2009.

This document specifies the quality requirements for fructooligosaccharides, including terms and definitions, product classification, requirements, test methods, inspection rules and signs, Packaging, transportation and storage: This document applies to the production, inspection and sale of fructooligosaccharides made from sucrose or from plants such as Jerusalem artichoke and chicory:

2 Normative references

The content of the following documents constitutes essential provisions of this document through normative references in the text: Among them, dated citations For documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies in this document:

GB/T 191 Graphical signs of packaging, storage and transportation Preparation of

GB/T 601 Standard Titration Solutions for Chemical Reagents

GB/T 602 Preparation of standard solutions for the determination of impurities in chemical reagents Preparation of preparations and products used in

GB/T 603 chemical reagent test methods

GB 5009:3-2016 National Food Safety Standard for Determination of Moisture in Food

GB 5009:4-2016 National Food Safety Standard for Determination of Ash in Food

GB/T 6682 Analysis Laboratory Water Specifications and Test Methods

3 Terms and Definitions

The following terms and definitions apply to this document: 3:1 fructooligosaccharide; FOS The fructosyl group is connected by beta-glycosidic bond, with alpha-D-glucose group, the degree of polymerization is 3~9, or without alpha-D-glucose group, the degree of polymerization is 2~9 functional oligosaccharides:

Note: It can be used as food or food raw material: 3:2 degree of polymerization; DP The

sum of the number of fructosyl and glucose groups in the fructooligosaccharide molecular chain: 3:

3 Fructooligosaccharide content the content of fructooligosaccharides In fructooligosaccharides, fructobiose (F2), fructotriose (GF2), fructotriose (F3), fructotetraose (GF3), fructotetraose (F4), sucrose Pentasaccharide (GF4), Fructose Pentaose (F5), Sucrose Hexose (GF5), Fructose Hexose (F6), Sucrose Heptaose (GF6), Fructose Heptaose (F7), Sucrose Eight Sugar (GF7), fruit-fructose eight sugar (F8), cane-fructose nine sugar (GF8), fruit and fruit nine sugar (F9), etc: (calculated on a dry basis/dry matter):