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

GB/T 47142-2026

**Determination of the molecular weight of polysaccharides -
Size exclusion chromatography with multi-angle laser light
scattering**

多糖分子量的测定 分子排阻色谱-多角度激光光散射法

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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. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Biochemical Testing (SAC/TC387). This document was drafted by: Hebei Provincial Institute of Food Inspection and Research, Tsinghua University, Henan University, China Academy of Testing Technology, and Nanjing Normal University. Huazhong Agricultural University, Hebei Medical University, Institute of Chinese Materia Medica, China Academy of Chinese Medical Sciences, Nanjing University of Finance and Economics, Beijing Union University, China Testing Technology Institute of Biology, Chinese Academy of Sciences; China Metrology and Testing Society. The main drafters of this document are. Zhang Yan, Cao Meirong, Li Qiang, Wang Yi, Kang Wenyi, Zhou Lihua, Lü Guangping, Chen Guoxun, Shi Guohua, and Ma Junmei. Lü Pin, Wen Di, Tang Xiaozhi, Ma Junzhan, Yin Qinggang, Xiang Li, Wang Feng, Yan Wenjie, Yang Chongrui, Liu Hechun, Yang Yangzhongfu. Determination of the molecular weight of polysaccharides Size exclusion chromatography-multi-angle laser light scattering method

1 Scope

GB/T 47142-2026 is the Chinese national standard covering the absolute molecular weight of a polysaccharide by SEC-MALS - an absolute measurement rather than one calibrated against dextran standards, which matters because the activity of a polysaccharide drug or food ingredient depends on its size distribution. First edition, in force since 1 May 2026. It was issued on 28 January 2026 and has been in force since 1 May 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. 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.

This document describes a method for determining the molecular weight of pectin, dextran, and inulin using size exclusion chromatography-multi-angle laser light scattering. Experimental conditions. This document applies to the molecular weight determination of pectin, dextran, and inulin with a purity $\geq 95\%$ and a molecular weight range of 1 kDa to 1000 kDa. The determination.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

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 polysaccharide Natural high molecular weight polymers formed by the linear or branched polymerization of more than 10 monosaccharide molecules through glycosidic bonds.

4.Principles After the samples were prepared into solutions, size exclusion chromatography was used to separate polysaccharide molecules of different molecular weights, which were then sequentially subjected to multi-angle laser light scattering detection. Detectors and differential refractive index detectors. Multi-angle laser light scattering detectors directly determine the absolute molecular weight of each component by detecting light scattering signals. The differential refractive index detector provides the concentration of the corresponding component, and the instrument's software combines the results of both to calculate the weight-average molecular weight.

5 Reagents, Materials and Instruments

5.1 Reagents and Materials Unless otherwise stated, all reagents are of analytical grade and the water is Grade I water as specified in GB/T 6682.

5.1.1 Dextran reference standard. molecular weight 30kDa~40kDa. 5.1.2

0.2 mol/L sodium chloride solution. Weigh

11.69 g of sodium chloride, dissolve it in ultrapure water and bring the volume up to 1 L.

5.1.3 Antibacterial agent. ProClin300.

5.1.4 Microporous filter membrane. pore size is 0.45 μ m.

5.1.5 Microporous filter membrane. pore size is 0.22 μ m.

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