ICS 59.060.20
CCS W 50

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 45709-2025

Determination of absolute molecular mass and molecular mass distribution of polyethylene terephthalate fibre and chip - Advanced polymer chromatography-multi angle laser light scattering (APC-MALLS)

聚对苯二甲酸乙二醇酯纤维及切片绝对分子质量及其分布的测定 高效聚合物色谱-多角度激光光散射法(APC-MALLS)

Issued on: May 30, 2025 **Implemented on: December 1, 2025**

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

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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.

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 is proposed and coordinated by the National Technical Committee on Standardization of Chemical Fibers (SAC/TC586).

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Polyethylene terephthalate fiber and chips Determination of molecular weight and its

distribution for highly efficient polymers APC-MALLS Warning---People who use this document should have practical experience in formal laboratory work. This document does not address all possible safety issues.

The user is responsible for taking appropriate safety and health measures and ensuring compliance with the conditions stipulated in relevant national laws and regulations.

For certain solvents, please read the Material Safety Data Sheet (SDS) carefully.

1 Scope

This document describes the determination of absolute molecular weight of polyethylene terephthalate (PET) by high performance polymer chromatography-multi-angle laser light scattering.

Methods of mass and its distribution.

This document is applicable to polyethylene terephthalate fibers and chips, and other PET products shall be implemented accordingly.

2 Normative references

GB/T 4146

3 Terms and definitions

GB/T 4146 (all parts) and the following terms and definitions apply to this document.

3.1

Based on the different molecular sizes of polymers, small particles and large-pore ethylene bridge hybrid particles are used to fill high stability, high resolution and Low diffusion columns are used to efficiently separate polymer molecular components.

3.2

A technique that can determine the mass or size of polymer molecules in solution by measuring the laser light scattering from multiple angles.

4 Principle

The APC was combined with multi-angle laser light scattering (MALLS) and a refractive index detector (RID).

When the dispersed polymer solution flows through the chromatographic column, it will be eluted in the order of molecular weight from large to small.

For polymer solutions, the scattered light intensity in any direction is proportional to the molecular weight of the polymer.

The absolute molecular mass and molecular weight distribution coefficient of the sample are calculated by the response value of each point obtained by mass and RID.

This test method is a method for determining absolute molecular mass and its distribution.