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**Nanotechnologies - Detection method for solid phase
extraction performance of polystyrene nanofibers**

纳米技术 聚苯乙烯纳米纤维固相萃取性能检测方法

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Abbreviations	2
5 Principle	2
6 Reagents and Materials	2
7 Instruments and Equipment	2
8 Solution Preparation	3
9 Sample Preparation	3
10 Detection Method	3
11 Result calculation	5
10 Reference	13

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 was proposed by the Chinese Academy of Sciences. This document is under the jurisdiction of the National Technical Committee on Nanotechnology Standardization (SAC/TC279). This document was drafted by: Southeast University, Nanjing Product Quality Supervision and Inspection Institute (Nanjing Quality Development and Advanced Technology Application Research Institute Institute), Suzhou Metrology and Testing Institute, and Suzhou Dongqi Biotechnology Co., Ltd. The main drafters of this document are: Kang Xuejun, Wu Xiaoxiao, Gu Zhongze, Zhang Chi, Zhou Jungui, Fang Dan, Deng Jianjun, Xu Jingjing, Jiang Diyao, Fan Wei, Mei Xiuming, Yan Yan, Shen Kangwei, Wang Yunxiang, Qiu Jinli, Yang Miao, Ji Hanxu, Wang Can, Gu Huidan, Chu Lanling, Li Yufeng, Qiang Yuwei, Xiao Youyu, Qiao Ling, Wei Lanlan, and Xie Li.

In modern chemical analysis, sample preparation and separation are indispensable for the quantitative analysis of target compounds in complex matrix samples. Pretreatment is a key factor in determining the sample analysis methodological indicators, such as recovery rate, repeatability, reproducibility, etc. A sample pretreatment technology for separation and

purification has become a commonly used method in micro or trace chemical analysis and has gradually been incorporated into Standardized procedures. Polystyrene nanofibers are used as solid phase extraction adsorbents for pretreatment of weak polar compounds detection. The physical properties of this material make With the widespread application of electrospinning technology around the world, polystyrene nanofibers have been Now it is in large-scale mass production and application. At present, there is no standard for the detection of relevant indicators of polystyrene nanofiber solid phase extraction at home and abroad, which is not conducive to product quality. Rhodamine B has a moderate oil-water partition coefficient. As a representative of weakly polar compounds, its aqueous solution has a bright purple-red color and is easy to observe. According to the characteristics of polystyrene nanofibers that can selectively adsorb weakly polar compounds, rhodamine B was selected as the target compound for detection. The extraction efficiency, intra-batch repeatability and inter-batch consistency of Rhodamine B in the polystyrene nanofiber loaded column were measured to evaluate the extraction efficiency, intra-batch repeatability and inter-batch consistency of Rhodamine B in the polystyrene nanofiber loaded column. The solid phase extraction performance of nanofiber as a pretreatment adsorbent for micro or trace analysis. It has a positive role in promoting the development of rice fiber industry. Nanotechnology Polystyrene Nanofibers Solid phase extraction performance test method

1 Scope

GB/T 44790-2024 gives the method for measuring the solid phase extraction performance of polystyrene nanofibres. Electrospun polystyrene fibre is attractive as an SPE sorbent because its surface area per gram is very high and its packing is open, so a small mass extracts efficiently at a flow rate that would channel through packed particles; but the performance depends on fibre diameter, mat density and surface state, none of which is captured by the mass of sorbent used, which is what makes a defined test necessary. The standard sets the principle, the reagents and materials, the instruments and equipment, the preparation of the solutions and of the sample, the detection method, the calculation of the result and the test report, with informative annexes giving worked examples using fluorescence spectrophotometry and high performance liquid chromatography. It takes effect on 1 May 2025.

This document describes the extraction efficiency, intra-batch reproducibility, and performance of polystyrene nanofiber solid phase extraction (SPE) for micro or trace analysis. Methods for testing refolding and batch-to-batch consistency. This document applies to the performance testing of polystyrene nanofibers as solid phase extraction adsorbents in micro or trace analysis.

2 Normative references

The contents of the following documents constitute the 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 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 Nanofiber The external dimensions of two dimensions are similar and are at the nanometer scale, and the external dimension of the remaining dimension is significantly larger than the nanometer scale of the other two dimensions. Meter object. NOTE