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PEOPLE'S REPUBLIC OF CHINA**

GB/T 47078-2026

Particles - Test method for filter efficiency against bioaerosols

颗粒 生物气溶胶过滤效率测试方法

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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 Particle Characterization, Sorting and Screening (SAC/TC168). This document was drafted by: Beijing Shian Technology Co., Ltd., South China University of Technology, Beijing Institute for Medical Device Testing, and Sichuan University. Western Medicine Hospital,

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With the rapid development of modern society, indoor air quality has become increasingly important to people's health and safety. Air purification is a crucial method for improving indoor air quality. Effective methods for improving indoor air quality make the performance evaluation of key components-filters or filter materials-particularly crucial. This is especially true for... The filtration efficiency of bioaerosols, a special type of particle, is crucial to people's health and safety. Bioaerosols contain bioactive components, including various bacteria, viruses, fungi, biotoxins, and allergens, some of which may be harmful to humans. Biological components that pose biohazards to animals and the environment. In certain indoor environments, such as hospitals and laboratories, the control of bioaerosols is crucial. Control and purification are particularly crucial. If bioaerosols can penetrate filters or filter materials, the live pathogenic microorganisms carried by the bioaerosols can... The consequences could be very serious. Therefore, testing and analyzing the bioaerosol filtration efficiency of filters or filter materials is crucial for providing biological... Quantitative testing results of active components in aerosols have become an urgent problem to be solved. This document was developed to accurately and effectively evaluate the filtration efficiency of filters or filter media for bioaerosols. This document describes how to select... Microorganisms not present in ambient air were selected as indicator microorganisms for testing, and a bioaerosol generator was used to produce indicator microbial gas. Aerosols

simulate the filtration process of bioaerosols in a real environment. This method allows for a more accurate and objective evaluation of filters or filtration processes. The filtration performance of filter materials for bioaerosols provides strong support for ensuring the safety and health of the indoor environment. Test method for particulate bioaerosol filtration efficiency Important

Note. The use of this document may involve hazardous biological components, procedures, and equipment. This document does not cover the use of hazardous biological components, procedures, or equipment. This document outlines biosafety considerations. Users should familiarize themselves with the biosafety requirements of the testing process, the target organism, and the testing environment before using this document. Risks and hazards should be identified, and appropriate biosafety measures should be taken.

1 Scope

GB/T 47078-2026 is the Chinese national standard covering testing a filter against living particles rather than salt or oil - bacteria and viruses in an aerosol behave differently from an inert test particle of the same size, and after the pandemic that difference stopped being academic. First edition, one of four particle standards issued together. It was issued on 28 January 2026 and has been in force since 1 August 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 testing the filtration efficiency of air filters and air filter materials using bioaerosols, including the test principle, measurement... Test conditions, test procedures, test results, and test report. This document applies to various air filters and air filtration materials used in biological facilities, biosafety equipment, and personal protective equipment. Testing of bioaerosol filtration efficiency.

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 19489 General Requirements for Laboratory Biosafety

GB/T 38517-2020 General Rules for Sampling and Analysis of Particulate Bioaerosols

GB/T 39990-2021 Technical requirements for particulate bioaerosol samplers

GB 41918-2022 Biosafety Cabinets WS/T 683-2020 Microbiological Requirements for Disinfection Tests

3 Terms and Definitions

The terms and definitions defined in GB/T 38517-2020, as well as the following terms and definitions, apply to this document.

3.1 Filter efficiency When testing air filters and air filter materials, the ratio of the amount of bioaerosols filtered out to the amount of bioaerosols before filtration is taken into account.

3.2 air filter Equipment that removes particulate matter from the air using methods such as filtration, adhesion, or charged capture. [Source: GB/T 14295-2019, 3.1]

3.3 air filtering material A medium used to efficiently capture and remove particulate matter from airflow through physical interception, adsorption, and other mechanisms.

Note. The main types include glass fiber filter media, meltblown electret polypropylene filter media, electrospun nanofiber filter media, and porous membrane materials.

3.4 It poses no biological hazard to humans, animals, and the environment, and within a certain range, it can indicate ambient air quality through changes in the characteristics, quantity, and types of microorganisms.