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

GB/T 45322.3-2026

**Particles - Separation performance test for particle size
separators - Part 3: Static chamber method**

颗粒 粒度切割器切割性能测试 第3部分：静态箱法

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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. This document is Part 3 of GB/T 45322 "Test of Cutting Performance of Particle Size Cutter". GB/T 45322 has been published. The following section.

1.General Rules;

2.Diversion Method;

3.Static Box Method. 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: Qingdao Institute of Metrology Technology, Qingdao Laoying Hainan Optoelectronic Environmental Protection Group Co., Ltd., and

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The particle size analyzer is the core component that separates airborne particles according to their size (aerodynamic diameter) based on aerodynamic principles. Cutting performance is a key characteristic of airborne particulate matter, typically used to collect particles within a specific size range. Cutting performance reflects the cutter's ability to separate particles of different sizes. One of the important factors affecting sampling consistency. Commonly used methods for testing cutting performance include the flow splitting method, the static chamber method, and the elution method. Users can choose the appropriate method based on the specific characteristics of the cutter being tested. Choose the appropriate testing method based on the available testing conditions. GB/T 45322 "Test of Cutting Performance of Particle Size Cutter" is proposed to consist of 4 parts.

- 1.General Rules. The purpose is to provide general definitions and requirements for testing the cutting performance of particle size cutters.
- 2.Flow Diversion Method. The purpose is to standardize the testing process and requirements for the flow diversion method.
- 3.Static Box Method. The purpose is to standardize the testing process and requirements for the static box method.
- 4.Elution Methods. The purpose is to standardize the testing procedures and requirements for elution methods. Particle size cutter cutting performance test Part

1 Scope

GB/T 45322.3-2026 is the Chinese national standard covering the cut curve of an impactor or cyclone - the size at which it removes half the particles and how sharp the transition is,

measured in a static chamber, which is what makes a PM2.5 sampler a PM2.5 sampler. Part 3 of the series, first edition of this part. 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 cutting performance of a particle size cutter using the static box method. This document applies to the testing of the cutting performance of particle size cutters used for air particulate matter sampling.

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 6682-2008 Specifications and test methods for water used in analytical laboratories

GB/T 13277.1-2023 Compressed Air - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 45322.1-2025 apply to this document.

4.Method Principles The particle size cutter (hereinafter referred to as "cutter") is connected to the static chamber. The reference test end (representing the upstream) of the cutter and the cutter under test are then connected. The particle concentration under different particle size conditions was measured at the outlet of the instrument (representing the downstream), and the cutting efficiency corresponding to different particle sizes was calculated. The result was obtained through fitting. Cutting efficiency curves were calculated, and the cutting particle sizes Da84, Da50, and Da16, and geometric standard deviations corresponding to cutting efficiencies of 84%, 50%, and 16% were also calculated. Difference sigmag.

5.1 Instruments

5.1.1 Test System Its composition and performance requirements shall comply with the provisions of Appendix A.

5.1.2 Flowmeter The accuracy level should be better than 1.0.

5.1.3 Digital pressure gauge Measurement range. -40 kPa to 0 kPa; accuracy class. better

than 1.0.

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