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

GB/T 29025.1-2025

Replacing GB/T 29025-2012

**Determination of particle size distribution - Electrical sensing
zone method - Part 1: Aperture tube method**

粒度分析 电阻法 第1部分：小孔管法

(English Translation)

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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 1 of GB/T 29025, "Particle size analysis - Resistivity method". GB/T 29025 has the following parts published.

---Part 1: Small-hole tube method.

This document replaces GB/T 29025-2012 "Particle Size Analysis - Resistivity Method".

Compared with GB/T 29025-2012, the main differences are structural adjustments and...

Aside from editorial changes, the main technical changes are as follows.

- Added the terminology and definition of effective density (see 3.8);
- The requirement for volume measurement has been added (see 6.5);
- The content regarding the repeatability and reproducibility of counts has been changed (see Chapter 7, Chapter 7 of the 2012 edition);
- A sample dispersion technique has been added (see 8.7.1);
- Added techniques for suspension and emulsion dilution (see 8.7.4);
- A method for confirming sample dispersion has been added (see 8.7.5);
- Added verification report information (see 11.2).

This document is equivalent to ISO 13319-1:2021 "Particle size analysis - Resistance method - Part 1: Pore size/pore tube method".

The following minimal editorial changes have been made to this document.

- To align with existing standards, the standard name has been changed to "Particle size analysis resistance method Part 1.small-hole tube 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).

Introduction

The resistivity method has long been a standard method for measuring particle size distribution. The results of this method are unaffected by particle shape and density.

It is suitable for particle size determination of various granular materials, with the advantages of high resolution and high accuracy, and also has particle counting function.

GB/T 29025 describes the test principles and methods of different resistance methods, and is proposed to consist of three parts.

- Part 1: The small-hole tube method. This method determines the particle suspension by measuring the impedance change as it passes through a small hole in the wall of a small-hole tube.

Determine particle size. Applicable to testing particle sizes ranging from 0.6 μm to 1200 μm .

---Part 2: Adjustable Resistance Pulse Sensing Method. The main characteristic of this method is the addition of a layer of elastic thermoplastic polyurethane (TPU) film...

Micron-sized orifices are machined, and the orifice size can be adjusted by mechanical stretching for measurement. Suitable for testing particle sizes ranging from [specific particle size range].

The range is 40nm to 100µm, and it can simultaneously test concentration and zeta potential.

---Part 3: Resistance Pulse Sensing Method. This method uses smaller solid nanopores and primarily measures the particle size of nanoparticles.

Concentration and zeta potential.

GB/T 29025 specifies the particle size testing methods for granular materials of different sizes in its three parts.

Particle size analysis resistivity method Part 1: Small-hole tube method

1 Scope

This document describes a method for measuring the particle size distribution of particles dispersed in an electrolyte solution using the resistance method.

This document applies to biological particles (such as cells) with a particle size range of approximately 0.5 µm to 1 mm or larger (depending on the implementation), as well as toner, Particle size analysis of industrial particulate materials such as cement, ceramic powder, metal powder, pigments, and polymer powders. This method involves measuring pulse height.

The particle size distribution is obtained by analyzing its relationship with particle volume or diameter. This document does not cover specific requirements for measurements of particular materials.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

The ISO and IEC maintainers provide a terminology database for standardization at the following address.

Deadtime