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

GB/T 29024.4-2017

**Determination of particle size distribution -- Single particle light
interaction methods -- Part 4: Light scattering airborne particle
counter for clean spaces**

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Foreword

GB/T 29024 "Particle size analysis of single optical measurement method" is divided into four parts.

--- Part 1. Light scattering aerosol spectrometer;

--- Part 2. Liquid particle counter light scattering method;

--- Part 3. Liquid particle counter photolithography;

--- Part 4. Clean room light scattering dust particle counter.

This section GB/T 29024 Part 4.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method is equivalent to using ISO 21501-4:2007 "Particle size analysis of optical measurement methods Part 4. Jie

Net interspersed light scattering particle counter ".

This section made the following editorial changes.

--- In keeping with the provisions of Chapter 3, replace "sampling volume" in the first column with "response capacity".

This part of the national particle characterization and sorting and screen standardization Technical Committee (SAC/TC168) proposed and centralized.

This part of the drafting unit. China Institute of Metrology, Machine Productivity Promotion Center, Beijing Coast Hong Meng Standard Material Technology Co., Ltd.

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Introduction

In the electronics industry, the pharmaceutical industry, precision instruments manufacturing and medical clinics, and many other areas need to monitor particle pollution, and dust particle meter

The counter is an effective instrument for monitoring particulate contamination in the air. This section provides a calibration procedure and test for light-scattering dust particle counters

Card method to minimize errors in instrument measurements and differences in measurement results between different instruments.

Particle size analysis of single particle optical measurement method

Part 4. Clean room light scattering dust particle counter

1 Scope

GB/T 29024 provisions of this part of the clean room light scattering particle counter dust (abbreviated as LSAPC, hereinafter referred to as the count

) Calibration and verification methods, the instrument used to measure the size of particles suspended in the air and the number of concentrations. Light scattering method in this section

For single particle measurement, the typical particle size measurement of this method is in the range of 0.1 μm to 10 μm .

In line with this section of the instrument is mainly used for clean rooms and controlled cleanliness of the classification of air cleanliness, see reference [2], but also

For other ambient air particles and particle size distribution measurement.

This section contains the following.

- Particle size calibration;
- particle size set value verification;
- Counting efficiency;
- Particle size resolution;
- Fake count rate;
- maximum particle concentration;
- Sampling flow;
- sampling time

--- Responsiveness;

--- Calibration cycle;

---testing report.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1

Calibrate Particles calibrationparticles

Monodisperse spherical particles with a known average particle size. The average particle size can be traceable to the international standard length, and the standard uncertainty should be

Not more than 2.5% (such as polystyrene latex particles PSL).

Note The refractive index of the PSL calibration particles is approximately 1.59 at 589 nm (line D in the sodium spectrum) wavelength.

2.2

Counting efficiency countingefficiency

When measuring the same sample, the ratio of the calibrated counter to the standard instrument measurement.

2.3

Particle counter particlecounter

Using light scattering or extinction method (light resistance method) for particle counting and particle size measurement of the instrument.