

ICS 17.040.30

CCS N 51



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

GB/T 44223-2024

**Nanotechnologies-Technical requirements for dynamic light
scattering particle size analyzers**

纳米技术 动态光散射法粒度分析仪技术要求

Issued on: July 24, 2024

Implemented on: February 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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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 is required.

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/TC 279).

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Nanotechnology Dynamic Light Scattering Particle size analyzer technical requirements

1 Scope

This document gives the principle of dynamic light scattering particle size analyzer, and specifies its performance, power supply voltage adaptability, environmental adaptability, safety and other aspects.

It specifies the technical requirements for safety, mechanical structure, test conditions, etc., and describes the test methods for accuracy and repeatability.

This document is applicable to the testing and inspection of particle size analyzers that measure the average particle size, particle size distribution and other parameters of nano- and submicron-sized particles.

Testing, operation and maintenance.

2 Normative references

GB/T 29022-2021

GB/T 30544.6-2016

JJG 1104-2015

3 Terms and definitions

The terms and definitions defined in GB/T 29022-2021, GB/T 30544.6-2016 and the following apply to this document.

3.1 Average hydrodynamic diameter

xDV The hydrodynamic diameter reflects the median of the particle size distribution.

Note 1. The average particle size can be directly determined without calculating the particle size distribution, or from the intensity-weighted distribution, volume-weighted distribution or number-weighted distribution, and The exact meaning of the average particle size is related to the calculation method.

Note 2. The cumulant method gives the harmonic mean particle size weighted by the scattered light intensity, sometimes also called the Z-mean particle size.

Note 3. According to ISO 9276-2, arithmetic, geometric and harmonic means can also be

calculated from the particle size distribution.

NOTE 4 The mean values calculated from the density function (linear coordinates) and the transformed density function (logarithmic coordinates) may differ significantly (see ISO 9276?1).

xDLS Note 5. Dependent on particle shape and scattering vector (and hence on detection angle, laser wavelength and refractive index of the suspension medium).

Note 6. Also known as average particle size.

[Source. GB/T 29022-2021, 3.2]

3.2 Polydispersity index; PI

A dimensionless quantity used to describe the width of the particle size distribution.

Note. For monodisperse spherical particle samples, the PI is usually less than 0.07.

[Source. GB/T 29022-2021, 3.3]