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

GB/T 26647.1-2011

**Determination of particle size distribution -- Single-particle light
interaction methods -- Part 1: Light interaction considerations**

单粒与光相互作用测定粒度分布的方法 第1部分：单粒与光相互作用

(English Translation)

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Reference

Foreword

GB/T 26647 "single particle light interaction methods of measuring particle size distribution," including the following three parts.

Part 1. Single particle light interaction;

Part 2. Single-grain cause light scattering instrument design, performance specifications and operational requirements;

Part 3. single grain led light reduction instrument design, performance specifications and operational requirements.

This section GB/T Part of 126,647.

This part identical with ISO 13323-1:2000 "Method of single grain size distribution and the interaction of light measurement - Part 1. Single grain and light interaction".

And ISO 13323-1. Compared to 2000, the editorial changes made the following section.

--- Deleted international standards foreword;

--- The "ISO 13323-1 This part" to "this Part";

--- Instead of using a decimal point as the decimal symbol, "";

--- Of ISO 13323-1:2000 and other international standards cited, for our use are identical

with the corresponding international standard in place standard.

This section of the Appendix A, Appendix B, Appendix C are informative appendices.

This part of the characterization and sorting by the National Standardization Technical Committee and mesh particles (SAC/TC168) and focal points.

This part of the main drafting unit. Shanghai Association of indoor environmental purification, Tongji University, Suzhou Purification Group Yiu Technology Co., Ltd., Shanghai meter the amount of Testing Technology Research Institute, the machine Productivity Promotion Center, Suzhou Huada Instrument Co., Ltd., Shanghai ingot Energy Technology Co., Ltd., Sea Polytechnic University.

Introduction

Over the years developed a variety of individual particles measuring instrument according to individual particles interact with light. In the optical design of these instruments, a light source Types and respect the way the interaction of light particles and the like are different. For the above reasons, almost the same for different instruments derived microparticles the measured data is often different. In addition, the degree of interaction between individual particles and light, in addition to the impact of particles by size, but also by a variety of physical Effect parameters. This section is intended to define the interaction of light with the measurement data generated on the basis of size and reduce its variability.

Usually single particle light interaction with the instrument for particle size measurement, or relates to the measurement of light scattering caused by a single particle, or involved and to present in the measurement light beam reduction of particulate-induced. This section will discuss the particles interact with light phenomenon being measured in the raw Li, general performance and operating parameters and equipment as well as equipment and manipulate the flow of particles related to the environment as a specification. Model specific instrument operation for performance and not within the scope of this section.

The method of single grain size distribution and the interaction of light measurement Part 1. Single particle light interaction

1 Scope

GB/T 26647 in this section to the particle size measurement selection and operation of the device to provide guidance, such a device by measuring the gas phase or liquid Phase interacting with the phenomenon of individual particles to determine the size and number of particles. The measured particle size of the optical equivalent size, which is equivalent to the measured Make the same size when the amount of particles in response to a standard system. This definition requires the use of a known size standard particle size analyzer calibration.

This section applies to a diameter of from about 0.05 microns to a few millimeters particles. About 0.05 μm ~ airborne particles within the range of 20 μm Mainly determined by light scattering method. Larger particles measured by the light sensor abatement. For liquid carrier particles at the scale of a few microns to 0.05 microns Particles in the range of measurement by the light scattering method. 1 micron to millimeter scales particles by the light reduction assay. Any particle size analyzer can measure Given scales usually close 100:1, with better resolution when measuring about 100 times greater than the smallest particle dimension particles obtained Result is greater than or equal to the threshold value of the largest dimension scale instrument channel.

This section considers the change in particle size analyzer to collect the luminous flux of light-sensitive area due to the presence of individual particles caused by the response. by for this reason, those who rely on the data produced by the interaction of the particles with light, only indicates the extent of the movement of particles instruments are not discussed in this section.

Note: For those instruments depends mainly on aerodynamics scale particles to produce data, including aerodynamic particle size analyzer, or phase Doppler particle size analyzer Etc., not discussed in this section. These instruments are not measured particle size depending on the degree of light and particle interactions, but with a correlation method to measure hydrodynamic Given particle size, the particle motion in the predetermined distance or the time required for the particle velocity is defined.

2 Normative references

The following documents contain provisions which, through reference GB/T 26647 in this section constitute provisions of this section. For dated references, all subsequent amendments (excluding corrections) or revisions do not apply to this section, however, encourage an agreement under this section Parties to study the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 3723 Sampling of chemical products for industrial use General Safety (GB/T 3723-1999, idt ISO 3165. 1976) GB/T 4650 Sampling of chemical products for industrial use vocabulary (GB/T 4650-1998, idt ISO 6206. 1979) GB/T 20099 prepared powder sample is dispersed in a liquid (GB/T 20099-2006, ISO 14887:2000, IDT)

3 Terms, definitions and symbols

The following terms and definitions and symbols apply to this section.

3.1 Terms and Definitions

3.1.1

Absorption when the light beam passes through a medium (fluid or particles), since the

energy conversion due to reduced strength.

3.1.2

Coincidence the presence of more than one particle in the sensitive zone at any time.

Note: This effect is expressed as the number of particles to reduce the particle size increases, because many particles might be seen as a larger particle.

3.1.3

Relative refractive index relative complex refractive index Suspension of fine particles to the fluid medium having a refractive index (n). Particles comprising a real part of the refractive index (n_p) and an imaginary part (ik_p); stream the refractive index of the medium body (n_m).