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

GB/T 15445.6-2014

**Representation of results of particle size analysis -- Part 6:
Qualitative and quantitative representation of particle shape
and morphology**

粒度分析结果的表述 第6部分：颗粒形状和形态的定性及定量表述

(English Translation)

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Foreword

GB/T 15445 "Size Analysis of expression" is divided into six parts, or have plans to release the following sections.

- Part 1. graphical representation;
- Part 2. particle size distribution calculated by the average particle size/diameter and each order moments;
- Part 3. Determination of the cumulative particle size distribution curve fit to the standard mode;
- Part 4. Characterization of a classification process;
- Part 5. logarithmic normal probability distribution calculation method of particle size analysis;
- Part 6. particle shape and morphology of the qualitative and quantitative statements.

This section GB/T 15445 Part 6.

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

This part identical with ISO 9276-6:2008 "presentation of the results of particle size analysis - Part 6. particle shape and morphology characterization and fixed the amount of expression "(in English).

This part made the following editorial changes.

- With "this Part" instead of "this International Standard";
- Remove the relevant ISO international standards of the preamble;
- Increase the standards described in the preparation of the preamble;
- Increase the number of tables, table name and the header.

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

This section is drafted. Beijing Physical and Chemical Analysis and Testing Center, the machine Productivity Promotion Center, China Institute of Metrology, Beijing powder Technology Association, the Beijing Municipal Food Safety Analysis Test Engineering Technology Research Center, Wengfu (Group) Co., Ltd.

Introduction

Currently on the particle shape and morphology of a variety of qualitative and quantitative representation of different methods, even for this term in terms of size, there is no Uniform definition. Different particle size analysis methods are based on the measurement of different physical characteristics. In GB/T 15445.1, the particle size is defined as Diameter of the sphere having the same physical characteristics, i.e., equivalent spherical diameter. The so-called characteristic function, which is characterized with the primary concern (for example, flow Mobility, taste and dissolution time) associate.

In terms of particle characterization, widely used classification method showed that the particle size is usually an important indicator, but not only the particle size. Sufficient to explain the phenomenon of particles such as powder flow, mixing, wear or biological effects. Particle system, particle shape and morphology play focuses to the role, it is necessary for quantitative characterization of these features and descriptions.

Characteristic function contains additional shape parameters should have better attributes associated with a particular particle system. For example, the characteristic function by using Grain size and edge sharpness of information, not only to distinguish between old and new abrasive grains, but also quantitative forecast abrasive grinding effect.

GB/T 21649.1 and ISO 13322-2 respectively measuring particle size analysis of static and dynamic images, descriptive and verification the method provides guidance. Standard wide range of industrial applications of image analysis techniques required particle size, shape and other characteristics of geometry and measurement method.

Shape of the particles is the envelope surface at all points on its surface composition. Particle morphology is simple shapes to complex description (such as porosity, crude Roughness and texture and other features) extension.

There are a variety of terms set for the description of particle shape and morphology (see Chapter 5), which may describe particle classification or identification Helpful, but the definition of particle shape and morphology quantitative terms in the software applications required has not yet reached sufficient consensus, this part of the repair Order version will involve relevant content.

Particle size analysis results presentation Part 6. particle shape and morphology Qualitative and quantitative expression

1 Scope

GB/T 15445 provisions of this part of the rules and terms of particle shape and morphology of qualitative and quantitative statements.

Note 1: In order to particles or systems more fully described granular information may be used together with other information, but in most cases can not be replaced.

Note 2: The samples of all the particles in the shape of an equivalent process has great limitations, it must be distributed as a supplement to other particle characteristics of particle size distribution (See GB/T 15445.1).

Note 3: The technology is a decisive factor in selecting the appropriate particle shape characterization methods. Therefore, this section is limited to industrial applications and physical properties relevant to a these characterization methods.

Note 4: The shape and morphology are usually three-dimensional problem, but due to the extensive use of image analysis, most of the definitions in this section are actually based on two Dimension.

Note 5: Using the evaluation criteria in Chapter 4, Chapter 5 from various descriptors and methods to give a basic set of descriptors (see Chapter 8), which makes Chapter 6 Subject to the conditions discussed, can be of different shape analysis apparatus or a method for direct comparison.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 15445.1-2008 size analysis results presentation - Part 1. graphical representation (ISO 9276-1:1998/Cor 1.2004, IDT) GB/T 21649.1-2008 image analysis particle size analysis - Part 1. Static image analysis (ISO 13322-1:2004, IDT)

3 Symbol

GB/T 21649.1 and GB/T 15445.1 specified symbol and the following symbols apply to this document.

In GB/T 15445.1, the symbol x is used to represent the particle size or diameter of a sphere. Considering the symbol d is also often used to represent the Value, in this section, the symbols x d can be replaced.

x d should not be used outside or symbol size.

Symbols referenced in this section are shown in Table 1.