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## Particle characterization of particulate systems — Vocabulary

*Caractérisation des particules dans les systèmes particuliers —  
Vocabulaire*



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Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

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The committee responsible for this document is ISO/TC 24, *Particle characterization including sieving*, Subcommittee SC 4, *Particle characterization*.

## Introduction

Since 1995, some 20 International Standards have been published by ISO/TC 24/SC 4, and at the time of publication of this International Standard, about 12 projects were under development, not to mention revisions of existing standards. Therefore it was not before time that terms defined in standards that were relevant for others be collected and adjusted into a single, uniform vocabulary.

In particular, the interdisciplinary application fields of particle and particulate systems characterization — from mining and construction, the pharmaceutical and food industries, medicine and life sciences, the chemical industry, microelectronics and nanotechnology — need clear and unambiguous terminology. The development of international trade, not only in measurement devices for particle characterization, but also of process equipment for the production and treatment of particulate systems, underlines the need for comparability of quality and performance parameters, as well as in international health, safety and environmental protection regulations.

The structuring and presentation rules applied to the terminological entries, based on a clause structure, represents the methods of results presentation and the analysis methods, and starts with general terms in each clause.



# Particle characterization of particulate systems — Vocabulary

## Scope

This International Standard establishes a vocabulary of terms and definitions relevant to the particle characterization of particulate systems. It covers such fields as the representation of results of particle size analysis, the descriptive and quantitative representation of particle shape and morphology, sample preparation, specific surface area and porosity characterization and measurement methods including sedimentation, classification, acoustic methods, laser diffraction, dynamic light scattering, single particle light interaction methods, differential electrical mobility analysis and image analysis, in a size scale from nanometre to millimetre.

## 1 General terms, representation of particle size and classification analysis

### 1.1

#### **particle**

minute piece of matter with defined physical boundaries

Note 1 to entry: A physical boundary can also be described as an interface.

Note 2 to entry: A particle can move as a unit.

Note 3 to entry: This general particle definition applies to nano-objects.

[SOURCE: ISO 14644-6:2007, 2.102, modified — The subject field “<general>” has been removed and the notes added.]

### 1.2

#### **agglomerate**

collection of weakly or medium strongly bound particles where the resulting external surface area is similar to the sum of the surface areas of the individual components

Note 1 to entry: The forces holding an agglomerate together are weak forces, for example van der Waals forces or simple physical entanglement.

Note 2 to entry: Agglomerates are also termed secondary particles and the original source particles are termed primary particles.

[SOURCE: ISO/TS 27687:2008, 3.2, modified.]

### 1.3

#### **aggregate**

particle comprising strongly bonded or fused particles where the resulting external surface area is significantly smaller than the sum of surface areas of the individual components

Note 1 to entry: The forces holding an aggregate together are strong forces, for example covalent bonds, or those resulting from sintering or complex physical entanglement, or otherwise combined former primary particles.

Note 2 to entry: Aggregates are also termed secondary particles and the original source particles are termed primary particles.

[SOURCE: ISO/TS 27687:2008, 3.3, modified.]