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## Particle characterization of particulate systems — Vocabulary

*Caractérisation des particules dans les systèmes particuliers —  
Vocabulaire*



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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 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 24, *Particle characterization including sieving*, Subcommittee SC 4, *Particle characterization*.

This second edition cancels and replaces the first edition (ISO 26824:2013), which has been technically revised.

The main changes are as follows:

- All definition clauses have been rearranged as subclauses in [Clause 3](#) and all terms and clauses have been renumbered.
- Latest revisions and documents from ISO/TC 24/SC 4 have been incorporated, as well as harmonization with ISO/TC 229 general definitions.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Since the last revision of this document in 2013, about 24 ISO standards have been published by ISO/TC 24/SC 4 and about 15 projects are currently under construction together with the 5-year revision of the existing standards. Therefore, terms and definitions of each standard, which are relevant for other standards should be collected and adjusted to a uniform nomenclature.

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

The structuring and presentation rules applied to the terminological entries are based on a clause structure, which represents the methods of sample preparation, measurement results presentation and the analysis methods, starting with more general terms in each clause.

The clause headlines address "Terms related to" technical fields, which are understood as a kind of domain with validity of the definitions limited to the indicated field.

The following particle properties are covered in the clauses given in brackets:

- particle size ([3.1](#), [3.4](#) to [3.10](#), [3.12](#) to [3.15](#))
- particle shape ([3.2](#), [3.8](#))
- particle number concentration ([3.5](#), [3.9](#) and [3.12](#))
- pore size, pore volume ([3.3](#))
- surface area ([3.3](#), [3.10](#))
- electrical charge in aerosols ([3.13](#))
- zeta potential in liquid dispersion ([3.17](#))
- particle dispersion in liquids ([3.16](#)).

Data uncertainty related definitions are given in [3.1](#) and [3.11](#)



# Particle characterization of particulate systems — Vocabulary

## 1 Scope

This document defines terms that are relevant to the characterization of particles and particulate systems. This document includes 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 such measurement methods as sedimentation, classification, acoustic methods, laser diffraction, dynamic light scattering, single particle light interaction methods, differential electrical mobility analysis, image analysis and others in a size scale from nanometre to millimetre.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1 Terms related to representation of size and classification analysis data

#### 3.1.1 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* (3.1.7).

[SOURCE: ISO 26824:2013, 1.1]

#### 3.1.2 agglomerate

collection of weakly or medium strongly bound *particles* (3.1.1) 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* (3.1.4).

[SOURCE: ISO 26824:2013, 1.2]