
**Representation of results of particle size
analysis —**

Part 1:
Graphical representation

Représentation de données obtenues par analyse granulométrique —

Partie 1: Représentation graphique



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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9276-1 was prepared by Technical Committee ISO/TC 24, *Sieves, sieving and other sizing methods*, Subcommittee SC 4, *Sizing by methods other than sieving*.

This second edition cancels and replaces the first edition (ISO 9276-1:1990), of which it constitutes a technical revision.

ISO 9276 consists of the following parts, under the general title *Representation of results of particle size analysis*:

- *Part 1: Graphical representation*
- *Part 2: Calculation of average particles sizes/diameters and moments from particle size distributions*

Annex A of this part of ISO 9276 is for information only.

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Representation of results of particle size analysis —

Part 1: Graphical representation

1 Scope

This part of ISO 9276 specifies rules for the graphical representation of particle size analysis data in histograms, density distributions and cumulative distributions. It also establishes a standard nomenclature to be followed to obtain the distributions mentioned above from the measured data.

This part of ISO 9276 applies to the graphical representation of distributions of solid particles, droplets or gas bubbles covering all size ranges.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 9276. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9276 are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*.

3 Symbols

3.1 General

In this part of ISO 9276, the symbol x is used to denote the particle size or the diameter of a sphere. However, it is recognized that the symbol d is also widely used to designate these values. Therefore, in the context of this part of ISO 9276, the symbol x may be replaced by d where it appears.

Symbols for the particle size other than x or d should not be used.

3.2 Symbol explanation

d particle size, diameter of a sphere (see 3.1)

i (subscript) number of the size class with upper limit x_i : $\Delta x_i = x_i - x_{i-1}$

v	(integer, see subscript i)
n	total number of size classes
$q_0(x)$	density distribution by number
$q_1(x)$	density distribution by length
$q_2(x)$	density distribution by surface or projected area
$q_3(x)$	density distribution by volume or mass
$q_r(x)$	density distribution (general)
$q_r^*(\ln x)$	density distribution in a representation with a logarithmic abscissa
$\bar{q}_{r,i}$	average density distribution of the class Δx_i : $\bar{q}_{r,i} = \bar{q}_r(\Delta x_i) = \bar{q}_r(x_{i-1}, x_i)$
$\bar{q}_r(x)$	histogram (general)
$Q_0(x)$	cumulative distribution by number
$Q_1(x)$	cumulative distribution by length
$Q_2(x)$	cumulative distribution by surface or projected area
$Q_3(x)$	cumulative distribution by volume or mass
$Q_r(x)$	cumulative distribution (general)
$Q_{r,i}$	$= Q_r(x_i)$
$\Delta Q_{r,i}$	increment of cumulative distribution within the class Δx_i : $\Delta Q_{r,i} = \Delta Q_r(x_{i-1}, x_i) = Q_r(x_i) - Q_r(x_{i-1})$
x	particle size, diameter of a sphere (see 3.1)
$x_{\min}$	size below which there are no particles
$x_{\max}$	size above which there are no particles
x_i	upper size of a particle size interval
x_{i-1}	lower size of a particle size interval
Δx_i	$= x_i - x_{i-1}$, width of the particle size interval
ξ	$= \xi(x)$ transformed coordinate