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Determination of particle size distribution by gravitational liquid sedimentation methods —

Part 4: Balance method

Détermination de la distribution granulométrique par les méthodes de sédimentation par gravité dans un liquide —

Partie 4: Méthode de la balance

Reference number
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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

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

ISO 13317 consists of the following parts, under the general title *Determination of particle size distribution by gravitational liquid sedimentation methods*:

— *Part 1: General principles and guidelines*

— *Part 2: Fixed pipette method*

— *Part 3: X-ray gravitational technique*

— *Part 4: Balance method*

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Introduction

This document is a part of the ISO 13317 series. It describes a method to determine particle size distribution by use of the mass of particles deposited at a balance. This method is based on a direct mass measurement and gives immediately the mass-based distribution of particle diameter. This method does not use any fitting parameters. The results obtained are Stokes diameters.

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Determination of particle size distribution by gravitational liquid sedimentation methods —

Part 4:
Balance method

1 Scope

This part of ISO 13317 specifies the method for the determination of particle size distribution by the mass of particles settling under gravity in liquid. This method is based on a direct mass measurement and gives the mass distribution of equivalent spherical particle diameter. Typically, the gravitational liquid sedimentation method applies to samples in the 1 µm to 100 µm size range and where the sedimentation condition for particle Reynolds number less than 0,25 is satisfied.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9276-1, *Representation of results of particle size analysis — Part 1: Graphical representation*

ISO 13317-1, *Determination of particle size distribution by gravitational liquid sedimentation methods — Part 1: General principles and guidelines*

ISO 14887, *Sample preparation — Dispersing procedures for powders in liquids*

ISO 14488, *Particulate materials — Sampling and sample splitting for the determination of particulate properties*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13317-1 and the following apply.

3.1
apparent particle density
particle mass divided by the volume it would occupy including all internal pores

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