International Standard

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Second edition
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Determination of particle size distribution — Single particle light interaction methods —

Part 1: Light scattering aerosol spectrometer

Détermination de la distribution granulométrique — Méthodes d'interaction lumineuse de particules uniques —

Partie 1: Spectromètre d'aérosol en lumière dispersée

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Foreword

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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 21501-1:2009), which has been technically revised.

The main changes are as follows:

— alignment with ISO 21501-4;

— addition of Annex F addressing counting efficiency.

A list of all parts in the ISO 21501 series can be found on the ISO website.

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Introduction

Particle size distributions and particle number concentrations must be monitored in various fields, e.g. in filter manufacturing, in the electronic industry, in the pharmaceutical industry, in the chemical industry, in the manufacture of precision machines and in medical operations. The aerosol spectrometer is a useful instrument for the determination of the size distribution and number concentration of particles suspended in a gas.

The purpose of this document is to provide the calibration procedure and the validation method for aerosol spectrometers, so as to improve the accuracy of the measurement result by aerosol spectrometers in general, and to minimize the difference in the results measured by different instruments.

The light scattering technique described in this document is based upon single particle measurements. The size range of particles measured by this method is between approximately 0,06 µm to 45 µm in diameter.

Instruments that conform to this document are used for the determination of the particle size distribution and particle number concentration at relatively high concentrations of up to 10^{11} particles/m^3.