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Indoor air —

Part 42:

Measurement of the particle number concentration by condensation particle counters

Air intérieur —

Partie 42: Mesurage de la concentration en nombre de particules au moyen de compteurs de particules à condensation



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Foreword

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This document was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 6, *Indoor air*.

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Introduction

People spend most of their day indoors where they are exposed to various sources of particles. Such particles can be dust particles, particles from combustion processes such as candles, cooking and fireplaces. Particles can also be emitted by do-it-yourself activities and the operation of electrical equipment such as printers. Classical building envelope materials are not efficient to prevent particle transport between indoor and outdoor environments. Sources of outdoor particles are various and include traffic and other combustion processes, and industrial and agricultural activities. Air exchanges are driven by natural infiltration and ventilation, but also mechanical ventilation present in the building.

All this can result in highly variable levels of indoor particles concentration that are not easily ascertained or assessed in terms of their impacts on health.

Epidemiological studies have shown that ultrafine particles (UFP) can have a negative impact on peoples' health.^[1] Due to their very small size they can indeed penetrate deeply into the human body.

Particle measurement instrumentation allows determining either the total particle number concentration or the particle number size distribution. This document describes the general strategies for the measurement of indoor sub-micron particles with the focus on determining the total number concentration.

This document was prepared in response to the need for improved comparability of methods for particle measurement.