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Ambient air — Application of EN 16909 for the determination of elemental carbon (EC) and organic carbon (OC) in PM10 and PMcoarse

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National foreword

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Ambient air - Application of EN 16909 for the determination of elemental carbon (EC) and organic carbon (OC) in PM10 and PMcoarse

Air ambiant - Application de la norme EN 16909 pour le dosage du carbone élémentaire (EC) et du carbone organique (OC) dans les fractions PM10 et PMgrossière

Außenluft - Anwendung der EN 16909 zur Bestimmung von elementarem Kohlenstoff (EC) und organischem Kohlenstoff (OC) in PM10 und PMcoarse

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European foreword

This document (CEN/TR 17554:2020) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

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Introduction

The standard method EN 16909 provides guidance for the determination of organic carbon (OC) and elemental carbon (EC) in airborne particulate matter deposited on filters. It has been developed following the requirement for the EU member states to measure OC and EC in the $PM_{2,5}$ size fraction (less than 2,5 µm in aerodynamic diameter) at background sites [5]. EN 16909 standard states: "The same analysis method may also be used for smaller size fractions than $PM_{2,5}$. Any possible additional artefacts for larger particles, e.g. pyrolysis or higher concentrations of carbonates, should be assessed."

1 Scope

This document describes procedures to assess the applicability of the standard method EN 16909 (determination of OC and EC deposited on filters) to particle size fractions up to 10 µm in aerodynamic diameter (50 % cut off).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16909, *Ambient air - Measurement of elemental carbon (EC) and organic carbon (OC) collected on filters*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16909 and the following apply.

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

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

3.1
PM_x
particulate matter suspended in air which is small enough to pass through a size-selective inlet with a 50 % efficiency cut-off at x µm aerodynamic diameter

[SOURCE: EN 12341:2014 [1], definition 3.1.14]

3.2
PM_{coarse} fraction
the PM_{10} fraction excluding the $PM_{2.5}$ fraction

3.3
OC_x
organic carbon component of PM_x

3.4
EC_x
elemental carbon component of PM_x

3.5
PC_x
pyrolysis carbon component of PM_x

3.6
TC_x
Total carbon component of PM_x