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Stationary source emissions — Test method for determining PM_{2,5} and PM₁₀ mass in stack gases using cyclone samplers and sample dilution

Émissions de sources fixes — Méthode d'essai pour la détermination de la concentration en masse de PM_{2,5} et PM₁₀ dans les gaz émis à la cheminée en utilisant des échantillonneurs cyclone et une dilution d'échantillon



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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.

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The committee responsible for this document is ISO/TC 146, *Air quality*, Subcommittee SC 1, *Stationary source emissions*.

Introduction

This International Standard provides conventions for the sampling and analysis of stack gas samples from stationary sources by the use of cyclone samplers to separate particulate matter with nominal aerodynamic diameters of 10 μm (PM_{10}) and 2,5 μm ($\text{PM}_{2,5}$).

This International Standard provides design guidelines for:

- the use of sampling cyclones, for the measurement of filterable particles;
- the measurement of filterable and condensable particles using the dilution sampling technique.

The dilution sampling technique allows for the capture and measurement of condensable, secondary particulate matter that is similar in characteristics to materials formed when a flue gas exhaust mixes with ambient air. The method is suited for obtaining particulate speciation data useful in local and regional source apportionment studies and health risk assessment studies.

This International Standard provides for the use of two types of sampling train:

- a) a basic sampling train to measure filterable particles using sampling cyclones that can distinguish between particle sizes in the range of 2,5 μm and 10 μm ;
- b) a dilution sampling train that uses in-stack sampling cyclones to measure filterable in particles in the same manner as the basic sampling train as in a), but measures also, condensable particles with additional $\text{PM}_{2,5}$ and/or PM_{10} cyclones located after the dilution chamber in the sampling train.

The method using dilution sampling for the formation, collection, and analysis of condensable particulate matter allows for capture of secondary particulate matter that is similar in character to ambient particulate matter. The method is suitable for the collection of source emission data for local and regional source apportionment studies. Particulate speciation data may also be gathered using dilution sampling to provide data for health risk assessment studies.