

AS 3580.9.8:2022



STANDARDS  
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# Methods for sampling and analysis of ambient air

**Method 9.8: Determination of suspended particulate matter — PM<sub>10</sub>  
continuous direct mass method using a tapered element oscillating  
microbalance analyser**



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AS 3580.9.8:2022

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ACT Health  
Australian Aluminium Council  
Australian Industry Group  
Australian Institute of Refrigeration Air Conditioning and Heating  
Clean Air Society of Australia & New Zealand  
Department of Environment and Science, Qld  
Department of Planning, Industry and Environment, NSW  
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# Methods for sampling and analysis of ambient air

## Method 9.8: Determination of suspended particulate matter — PM<sub>10</sub> continuous direct mass method using a tapered element oscillating microbalance analyser

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## Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EV-007, Methods for Examination of Air, to supersede AS 3580.9.8:2008.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this document as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this document is to provide regulatory and testing bodies with a standard method for continuously monitoring suspended particulate matter with an equivalent aerodynamic diameter (EAD) of less than 10  $\mu\text{m}$  ( $\text{PM}_{10}$ ) in ambient air, providing near real time measurement of mean particle concentration.

The major changes in this edition are as follows:

- (a) Align with current technology and to ensure consistency and uniformity across the different methods used in other continuous particulate monitoring Standards.
- (b) Provide an essential reference to AS 3580.19.

The requirements for instruments found to be suitable for using the method specified in this document are given in the United States Environmental Protection Agency (US EPA) Code of Federal Regulations, Title 40 Protection of Environment, Part 53 Ambient Air Monitoring Reference and Equivalent Methods (40 CFR 53), Subpart D Procedures for Testing Performance Characteristics of Methods for  $\text{PM}_{10}$ .

The terms “normative” and “informative” are used in Standard 19 to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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# Australian Standard®

## Methods for sampling and analysis of ambient air

### Method 9.8: Determination of suspended particulate matter — PM<sub>10</sub> continuous direct mass method using a tapered element oscillating microbalance analyser

#### 1 Scope

This document sets out a method for the continuous determination of PM<sub>10</sub> in ambient air using a tapered element oscillating microbalance (TEOM) without FDMS (for systems including FDMS, refer to AS/NZS 3580.9.16).

NOTE PM<sub>10</sub> are particulate matter small enough to pass into the lungs and cause serious health effects. Major PM<sub>10</sub> emission sources include industrial processes and natural sources, such as wind-blown dust and salt-laden air. Important anthropogenic sources include motor vehicles.

The method can provide a measure of mean particle concentration over periods from 10 min to 24 h. The moving 10 min mean is updated every 2 s, whereas the 24 h mean mass concentration is updated every 60 min on the hour. Results are normally reported as 24 h, time integrated mean values.

#### 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.

NOTE Documents for informative purposes are listed in the Bibliography.

AS 3580.9.9, *Methods for sampling and analysis of ambient air, Method 9.9: Determination of suspended particulate matter—PM<sub>10</sub> low volume sampler—Gravimetric method*

AS 3580.19, *Methods for sampling and analysis of ambient air, Method 19: Ambient air quality data validation and reporting*

AS/NZS 3580.1.1, *Methods for sampling and analysis of ambient air, Part 1.1: Guide to siting air monitoring equipment*

AS/NZS 3580.9.6, *Methods for sampling and analysis of ambient air, Method 9.6: Determination of suspended particulate matter—PM<sub>10</sub> high volume sampler with size-selective inlet—Gravimetric method*

AS ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

US EPA 40 CFR 53 Subpart D, Code of Federal Regulations, Title 40 Protection of Environment, Part 53 Ambient Air Monitoring Reference and Equivalent Methods, Subpart D Procedures for Testing Performance Characteristics of Methods for PM<sub>10</sub>