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**Stationary source emissions —
Determination of PM₁₀/PM_{2,5}
mass concentration in flue gas —
Measurement at higher concentrations
by use of virtual impactors**

Émissions de sources fixes — Détermination de la concentration en masse de PM₁₀/PM_{2,5} dans les effluents gazeux — Mesurage à des hautes concentrations à l'aide des impacteurs virtuels



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	4
4.1 Symbols	4
4.2 Abbreviated terms	5
5 Principle	6
5.1 General	6
5.2 Theory of virtual impactor	6
6 Specification of the two-stage virtual impactor	8
6.1 General	8
6.2 Separation curves	8
6.3 Verification of the separation curves	9
6.4 Operating conditions	9
7 Sampling train	12
7.1 Measuring setup	12
7.2 Equipment and working materials	13
8 Preparation, measurement procedure and post-treatment	15
8.1 General	15
8.2 Pre-treatment	15
8.3 Measurement procedure	16
8.4 Weighing procedure	17
8.5 Post-sampling treatment of weighed parts	18
9 Calculation of the results	18
10 Performance characteristics	19
10.1 Virtual impactor load	19
10.2 Detection limit	19
10.3 Measurement uncertainty	19
10.4 Particle losses	19
11 Test report	20
Annex A (informative) Physical property estimation for the calculation of sample volume flow rate	21
Annex B (informative) Errors by deviations from isokinetic sampling	25
Annex C (informative) Example of a two-stage virtual impactor	27
Annex D (informative) Influence of variations in the flue gas temperature and flue gas composition on the Reynolds number	31
Annex E (informative) Entry nozzle	34
Annex F (informative) Equipment list	35
Annex G (normative) Determination of a representative sampling point	37
Annex H (informative) Generation of standard aerosol for virtual impactor calibration	39
Bibliography	40

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13271 was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 1, *Stationary source emissions*.

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Introduction

In order to quantify the amount of PM₁₀ and PM_{2,5} particles in stationary source emissions or to identify the contribution sources of PM₁₀ and PM_{2,5} in ambient air, it is necessary to measure fine particulate matter in the flue gas of industrial sources.

This International Standard describes a measurement method for determination of mass concentrations of PM₁₀ and PM_{2,5} emissions, which realizes the same separation curves as those specified in ISO 7708^[1] for PM₁₀ and PM_{2,5} in ambient air. The method is based on the principle of gas stream separation using two-stage virtual impactors. This is applicable to higher dust concentrations than the concentrations used for cascade impactors with impaction plates.

The measurement method allows the simultaneous determination of concentrations of PM₁₀ and PM_{2,5} emissions. The method is designed for in-stack measurements at stationary emission sources with possible reactive gases and/or high water vapour.

The contribution of stationary source emissions to PM₁₀ and PM_{2,5} concentrations in ambient air is classified as primary and secondary. Those emissions that exist as particulate matter within the stack gas and that are emitted directly to air can be considered "primary". Secondary particulate consists of those emissions that form in ambient air due to atmospheric chemical reactions. The measurement technique in this International Standard does not measure the contribution of stack emissions to the formation of secondary particulate matter in ambient air.