

INTERNATIONAL STANDARD

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Stationary source emissions — Sampling and determination of gaseous fluoride content

*Émissions de sources fixes — Échantillonnage et détermination de la
teneur en fluorure gazeux*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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 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 15713 was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 1, *Stationary source emissions*.

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Introduction

This International Standard describes a method for the measurement of the concentration of gaseous fluoride compounds in flue gas passing through ducts or chimneys.

The effects of fluoride containing species are of concern as irritants to humans when inhaled at high concentration and because of the potential for adverse effects on vegetation.

For the purposes of this International Standard, the fluoride measured is quoted as hydrogen fluoride. The aim of the method is to measure hydrogen fluoride, but, in practice, the parameter assessed is operationally defined. The fluoride measured is from those compounds that pass through a filter and dissolve in dilute sodium hydroxide and which produce fluoride ions which remain present in solution when analysed.

Stationary source emissions — Sampling and determination of gaseous fluoride content

1 Scope

This International Standard is applicable to the measurement of the gaseous fluorides that are entrained in gases carried in stacks or ducts. The gaseous fluoride content is expressed as a mass of hydrogen fluoride in the stack gas.

This International Standard is applicable to all stacks emitting gases with fluoride concentrations of below 200 mg/m³. It can be used for higher concentrations, but then the absorption efficiency of the bubblers should be checked before the results can be regarded as valid. The detection limit of the method is estimated as 0,1 mg m⁻³, based on a sample volume of 0,1 m³. All compounds that are volatile at the filtration temperature and produce soluble fluoride compounds upon reaction with water are measured by this method. The method does not measure fluorocarbons. The concentration of fluoride in the adsorbent solution is then measured using an ion selective electrode. The amount of fluoride measured is then expressed as hydrogen fluoride by convention, though this may not reflect the chemical nature of the compounds, which are measured.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 9096:2003, *Stationary source emissions — Manual determination of mass concentration of particulate matter*

ISO 10780, *Stationary source emissions — Measurement of velocity and volume flowrate of gas streams in ducts*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

isokinetic sampling

sampling at a flowrate such that the velocity and direction of the gas entering the sampling nozzle is the same as that of the gas in the duct at the sampling point

[ISO 9096:2003]

3.2

sampling point

specific position on the sampling section at which a sample is extracted

NOTE Sampling points are spread out over the sampling section in order to be representative of subsections of equal areas.