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Émissions de sources fixes - Surveillance du mercure à l'aide de pièges adsorbants

Emissionen aus stationären Quellen - Quecksilbermonitoring mit Sorptionsfallen

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European foreword

This document (CEN/TS 17286:2019) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

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1 Scope

The purpose of this document is to establish performance benchmarks for, and to evaluate the acceptability of, sorbent trap monitoring systems used to monitor total vapour- phase mercury (Hg) emissions in stationary source flue gas streams. These monitoring systems involve continuous repetitive in-flue sampling using paired sorbent traps with subsequent analysis of the time-integrated samples.

This document is suitable for both short-term (periodic) measurements and long-term (continuous) monitoring using sorbent traps.

NOTE When this Technical Specification has been validated, the sorbent trap method will be an Alternative Method subject to the restrictions on applicability defined below. Until that time, EN 13211 is the only accepted Reference Method for both short-term (periodic) measurements and for calibrating continuous monitoring systems, including those with long-term sampling systems. EN 13211 is a wet chemistry approach that relies on absorption of mercury into impinger solutions.

The substance measured according to this specification is the total vapour phase mercury in the flue gas, which represents the sum of the elemental mercury (Hg^0) and gaseous forms of oxidized mercury (Hg^{2+}), such as mercury (II) chloride, in mass concentration units of micrograms (µg) per dry meter cubed (m^3). The analytical range is typically 0,1 to greater than 50 µg/m^3.

The sorbent tube approach is intended for use under relatively low particulate conditions (typically less than 100 mg/m^3) when monitoring downstream of all pollution control devices, e.g. at coal fired power plants and cement plants. In this case, the contribution of mercury in the particulate fraction is considered to be negligible (typically less than 5 % of total mercury). However, it shall be noted that the sorbent trap does take account of the finest particle fraction that is sampled with the flue gas, in addition to capturing the vapour phase mercury.

This specification also contains routine procedures and specifications that are designed to evaluate the ongoing performance of an installed sorbent trap monitoring system. The operator of the industrial installation is responsible for the correct calibration, maintenance and operation of this long-term sampling system. Additional requirements for calibration and quality assurance of the long-term sampling system are then defined in EN 14884 and EN 14181.

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 14181, *Stationary source emissions — Quality assurance of automated measuring systems*

EN 14790 *(series)*, *Stationary source emissions — Determination of the water vapour in ducts — Standard reference method*

EN 15259:2007, *Air quality — Measurement of stationary source emissions — Requirements for measurement sections and sites and for the measurement objective, plan and report*

EN 15267 *(series)*, *Air quality — Certification of automated measuring systems*

EN 15853, *Ambient air quality — Standard method for the determination of mercury deposition*

EN ISO 16911-1:2013, *Stationary source emissions — Manual and automatic determination of velocity and volume flow rate in ducts — Part 1: Manual reference method (ISO 16911-1:2013)*