Stationary source emissions - Determination of the water vapour in ducts

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 14790:2005 sisaldab Euroopa standardi EN 14790:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 28.12.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 14790:2005 consists of the English text of the European standard EN 14790:2005. This document is endorsed on 28.12.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard describes the condensation/adsorption technique, including the sampling system, to determine the water vapour concentration in the flue gases emitting to atmosphere from ducts and stacks.	**Scope:** This European Standard describes the condensation/adsorption technique, including the sampling system, to determine the water vapour concentration in the flue gases emitting to atmosphere from ducts and stacks.

ICS 11.040.40

Võtmesõnad: air pollution, air quality, chimneys, concentration, ducts

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Stationary source emissions - Determination of the water vapour in ducts

Emissions de sources fixes - Détermination de la vapeur d'eau dans les conduits

Emissionen aus stationären Quellen - Bestimmung von Wasserdampf in Leitungen

This European Standard was approved by CEN on 30 September 2005.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard (EN 14790:2005) has been prepared by Technical Committee CEN/TC 264 “Air qualilty”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2006, and conflicting national standards shall be withdrawn at the latest by May 2006.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this European Standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard describes the condensation/adsorption technique, including the sampling system, to determine the water vapour concentration in the flue gases emitting to atmosphere from ducts and stacks.

This technique is usually used all over Europe for water vapour monitoring. However to be implemented as the Standard Reference Method (SRM), the user has to demonstrate that the performance characteristics of the method are better than the performance criteria defined in this European Standard and that the overall uncertainty of the method is less than $\pm$ 20 % of the measured value. This European Standard as the Standard Reference Method (SRM) is used for periodic monitoring and for calibration or control of Automatic Measuring Systems (AMS) permanently installed on a stack, for regulatory purposes or other purposes.

An Alternative Method to this SRM may be used provided that the user can demonstrate equivalence according to the Technical Specification CEN/TS 14793, to the satisfaction of his national accreditation body or law.

The determination of water vapour is mainly necessary for:

— regulatory purposes, to express the concentration at standard conditions (on dry gas);

— adjust the flow rate for isokinetic sampling, when a dry gas flow rate metering device is used.

For both applications, the quantity to be measured is the amount of water present in the gas phase (vapour), which does not include water droplets.

This European Standard is applicable in the range from 4 % to 40 % relative humidity and for water vapour concentration from 29 g/m^3 to 250 g/m^3 as a wet gas, although for a given temperature the upper limit of the method is related to the maximum pressure of water in air or in the gas.

This European Standard has been evaluated during field tests on waste incineration, co-incineration and large combustion installations. It has been validated for sampling periods of 30 min in the concentration range of 7 % to 26 % volume.

In this European Standard all the concentrations are expressed in normal conditions (273 K and 101,3 kPa).

NOTE For saturated conditions the condensation/adsorption method is not applicable. Some guidance is given in this European Standard to deal with flue gas when droplets are present.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ENV 13005, *Guide to the expression of uncertainly in measurement*.

CEN/TS 14793, *Stationary source emission - Intralaboratory validation procedure for an alternative method compared to a reference method*.

EN ISO 14956, *Air Quality – Evaluation of the suitability of a measurement procedure by comparison with a required measurement uncertainty (ISO 14956:2002)*.