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STANDARDISATION MANDATE TO CEN FOR MANUAL REFERENCE METHODS FOR THE CALIBRATION OF AUTOMATED MEASUREMENT SYSTEMS FOR OXYGEN (O₂) AND WATER VAPOUR (H₂O) EMISSIONS IN STACK.

I. MOTIVATION

Following the environmental protection objectives laid down by Article 130 R of the EC Treaty, the Council has adopted a number of Directives in order to control at Community level air pollution from stationary sources, mainly large combustion plants and waste incineration and co-incineration installations:

- Council Directive 88/609/EEC on the limitation of emissions of certain pollutants into the air from large combustion plants;
- Council Directive 89/369/EEC on the prevention of air pollution from new municipal waste incineration plants;
- Council Directive 89/429/EEC on the reduction of air pollution from existing municipal waste incineration plants;
- Council Directive 94/67/EC on the incineration of hazardous waste.

These Directives lay down emission limit values for different pollutants as minimum requirements to be respected by the operators. Indeed, large combustion and waste incineration and co-incineration installations have an important environmental impact because of their atmospheric emissions.

The determination of these minimum requirements is closely linked to the related process operation parameters such as the oxygen (O₂) and water vapour (H₂O) contents which are explicitly expressed in the text of some of the above mentioned Directives and/or in new related Commission Proposals for Directives:

- Council Directive 88/609/EEC mentions in Article 13(2) that the measuring methods and/or equipment to determine inter alia the concentrations of O₂ and other values required in order to monitor implementation of the Directive shall provide reproducible and comparable results for the emissions levels; whereas the Commission Proposal COM(98)415 for a Directive amending Council Directive 88/609/EEC on large combustion plants requires that representative measurements, i.e. sampling and analysis of relevant pollutants and process parameters (such as O₂ content, temperature, pressure,...) as well as reference measurement methods to calibrate automated measurements systems are to be carried out in accordance with CEN standards.
- Council Directive 94/67/EC on the incineration of hazardous waste and the Commission Proposal COM (98) 558 for a Directive on incineration of waste require the availability of standardised analytical measurement methods developed by CEN, for the determination of process operation parameters, such as oxygen and water vapour contents, related to pollutants emissions from incineration and co-incineration processes.

Oxygen and water vapour emission values are used in order to standardise emission measurements of relevant pollutants under given O₂ content and dry gas conditions.

The calculation of the concentration of those pollutants could lead, under certain conditions, to unacceptable confidence intervals for the standardised emission values. As an example, a relative uncertainty of 10% on O₂ content and of 10% on H₂O content, at concentration levels of respectively 15% and 25% wet, induces a relative uncertainty of nearly 50% on the whole set of emission values.

Therefore, it appears that the availability of a standardised reference method, allowing the calibration of on-site automated measurement systems for oxygen and water vapour contents determination, is a necessary condition for the efficient implementation of these Directives, as far as emissions measurements are concerned.

II. DESCRIPTION OF THE MANDATED WORK

1. The Commission entrusts CEN with the following work:

- Establishment of a standardised manual reference method for oxygen content determination in stack emissions.
- Establishment of a standardised manual reference method for water vapour content determination in stack emissions.

Each of these standards is to cover:

- scope;
- principle of the reference method;
- apparatus for sampling and analysis;
- sampling and analysis procedure (including technical requirements, calibration,...);
- calculations and expression of results;

- evaluation of the performances of the measurement method
 - conducting of tests, including their assessment and validation;
 - interpretation of the tests;
 - summing up of the comparison and variability tests report(s);
 - annex:
 - methodology to show the equivalency of another method, with actual example(s) and sum-up of test report(s);
 - miscellaneous.
2. The following work is to be performed during the standardisation process in order to keep in line with the regulatory framework.
 - Standardised reference methods shall be evaluated during field tests on two waste incineration installations, on two specific co-incineration installations (such as cement kilns) and on two large combustion plants.
 - The reference method for O₂ shall be validated in the range of 0-20%.
 - The reference method for H₂O shall be validated in the range of 0-30%.
 - Standardised reference methods shall allow the calibration of automated measurement systems on the appropriate time basis (half hourly, hourly, daily,...) as laid down in the relevant Council Directives and Commission Proposals, already mentioned.
 - The uncertainties associated with O₂ and H₂O reference methods shall be minimised. Field tests validation shall show that these uncertainties do not overshadow the provisions concerning confidence intervals of relevant pollutants measurements.
 3. The Commission recommends CEN to take into account, as far as possible, existing standards or rules available in these areas at a national or international level.

III. EXECUTION OF THE MANDATE

1. CEN will present the draft standards for H₂O and O₂ (prEN) to the Commission before 31 December 2002.
2. The European standards (EN) will be adopted before 30 June 2003.
At this date, the three linguistic versions (French, German, English) will be available as well as the correct titles in other Community languages.
3. Within six months of their adoption, the European standards (EN) will be transposed into national standards and all the different national standards of the Member States will be withdrawn.
4. The Commission reserves the possibility of specifying more precisely, if necessary, the requirements according to the final version of the draft Directives on large combustion plants and on incineration of waste, once adopted by the Council. The present mandate may be amended by common agreement if that proves to be necessary during the course of the works.

5. CEN will present a report, at least once a year, of the progress of the work carried out according to this mandate.