

**REPORT
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English version

**Determination of emissions from
appliances burning gaseous fuels
during type-testing**

B A S I C D O C U M E N T

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DETERMINATION OF EMISSIONS FROM APPLIANCES BURNING GASEOUS FUELS DURING TYPE-TESTING

A. INTRODUCTION

This draft describes test methods and automatic measuring equipment for the determination of NO_x ($\text{NO} + \text{NO}_2$), CO , CO_2 and O_2 emissions in the flue gases including the sampling system and the calibration gases. The document should be introduced in the relevant gas appliances TC.

Gas cookers, flueless appliances and appliances especially designed for use in industrial processes carried out on industrial premises are excluded from the scope.

According to their principles of analysing the combustion products, the analyzers are classified into following families :

- analyzers based on the chemiluminescent effect : NO and NO_2 ,
- analyzers based on the absorption of infra-red and ultra-violet radiation : NO and NO_2 for concentrations > 100 ppm, CO and CO_2 ,
- analyzers based on the paramagnetic principle : O_2 ,
- electrochemical analyzers : they are considered to be inadequate for laboratory testing procedures.

The conversion of measured levels to reference conditions is given in appendix 1.

B. REFERENCE

ISO/DIS 10849

Stationary source emission.
Determination of the Mass Concentrations of Nitrogen Oxides.
Performance Characteristics and Calibration of Automated Measuring Systems.

ISO 10396

Stationary source emission.
Sampling for the Automated Determination of Gas Concentration.

ISO 3534 - Vocabulary and Symbols

ISO 6976 - Natural gas - Calculation of calorific value, density and relative density.

ISO 6142 - Gas Analysis - Preparation of calibration Gas Mixtures - Weighing Methods - July 1989

ISO 6141 - Gas Analysis - Calibration Gas Mixtures - Certificate of Guarantee

WECC Doc. 19-1990 - Guidelines for the expression of the uncertainty of measurement in calibrations.

VEG - 9201(23/6/92) - Practical guide for the calculation of uncertainties of measurements.
