

**Ambient air quality - Standard method  
for the measurement of the  
concentration of nitrogen dioxide and  
nitrogen monoxide by  
chemiluminescence**

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measurement of the concentration of nitrogen  
dioxide and nitrogen monoxide by  
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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14211:2005 sisaldab Euroopa standardi EN 14211:2005 ingliskeelset teksti.	This Estonian standard EVS-EN 14211:2005 consists of the English text of the European standard EN 14211:2005.
Käesolev dokument on jõustatud 28.04.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 28.04.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

<b>Käsitlusala:</b> This document specifies a continuous measurement method for the determination of the concentration of nitrogen dioxide and nitrogen monoxide present in ambient air based on the chemiluminescence measuring principle.	<b>Scope:</b> This document specifies a continuous measurement method for the determination of the concentration of nitrogen dioxide and nitrogen monoxide present in ambient air based on the chemiluminescence measuring principle.
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**Võtmesõnad:** chemical analysis and testin, nitri, nitrogen dioxide, nitrogen oxides, pollution control, pollution of the air, quality, reference methods, sampling, sampling methods, side testers, specification (approval), specifications, test equipment, test methods, testing

ICS 13.040.20

English version

**Ambient air quality - Standard method for the measurement of  
the concentration of nitrogen dioxide and nitrogen monoxide by  
chemiluminescence**

Qualité de l'air ambiant - Méthode normalisée pour le  
mesurage de la concentration en dioxyde d'azote et  
monoxyde d'azote par chimiluminescence

Luftqualität - Messverfahren zur Bestimmung der  
Konzentration von Stickstoffdioxid und Stickstoffmonoxid  
mit Chemilumineszenz

This European Standard was approved by CEN on 10 December 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
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## Foreword

This document (EN 14211:2005) has been prepared by Technical Committee CEN/TC 264 "Air quality", 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 September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

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 document specifies a continuous measurement method for the determination of the concentration of nitrogen dioxide and nitrogen monoxide present in ambient air based on the chemiluminescence measuring principle. This document describes the performance characteristics and sets the relevant minimum criteria required to select an appropriate chemiluminescence analyser by means of type approval tests. It also includes the evaluation of the suitability of an analyser for use in a specific fixed site so as to meet the Directives data quality requirements and requirements during sampling, calibration and quality assurance.

The method is applicable to the determination of the concentration of nitrogen dioxide present in ambient air from  $0 \mu\text{g}/\text{m}^3$  to  $500 \mu\text{g}/\text{m}^3$ . This concentration range represents the certification range for  $\text{NO}_2$  for the type approval test.

NOTE 1  $0 \mu\text{g}/\text{m}^3$  to  $500 \mu\text{g}/\text{m}^3$  of  $\text{NO}_2$  corresponds to 0 nmol/mol to 261 nmol/mol of  $\text{NO}_2$ .

The method is applicable to the determination of the concentration of nitrogen monoxide present in ambient air from  $0 \mu\text{g}/\text{m}^3$  to  $1\,200 \mu\text{g}/\text{m}^3$ . This concentration range represents the certification range for  $\text{NO}$  for the type approval test.

NOTE 2  $0 \mu\text{g}/\text{m}^3$  to  $1\,200 \mu\text{g}/\text{m}^3$  of  $\text{NO}$  corresponds to 0 nmol/mol to 962 nmol/mol of  $\text{NO}$ .

The method covers the determination of ambient air concentrations of nitrogen dioxide and nitrogen monoxide in zones classified as rural areas, urban-background areas and traffic-orientated locations.

NOTE 3 Lower ranges may be used for measurement systems applied at rural locations monitoring Ecosystems.

The results are expressed in  $\mu\text{g}/\text{m}^3$  (at 293 K and 101,3 kPa).

When the standard is used for other purposes than the EU Directive, the range and uncertainty requirements need not apply.

## 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.

ENV 13005, *Guide to the expression of uncertainty in measurement*

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

ISO 6142, *Gas analysis — Preparation of calibration gas mixtures — Gravimetric method*

ISO 6143, *Gas analysis — Comparison methods for determining and checking the composition of calibration gas mixtures*

ISO 6144, *Gas analysis — Preparation of calibration gas mixtures — Static volumetric method*

ISO 6145 (all parts), *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods*

ISO 13964:1998, *Air quality — Determination of ozone in ambient air — Ultraviolet photometric method*