

საქართველოს სტანდარტი

სტაციონარული წყაროს ემისიები - აზოტის ოქსიდების მასობრივი
კონცენტრაციის განსაზღვრა - სტანდარტული ეტალონური მეთოდი

საინფორმაციო მონაცემები

1 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს 2018 წლის 11 მაისის № 54 და 2018 წლის 7 მარტის № 14 განკარგულებებით

2 მიღებულია თავფურცლის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 14792:2017 „სტაციონარული წყაროს ემისიები - აზოტის ოქსიდების მასობრივი კონცენტრაციის განსაზღვრა - სტანდარტული ეტალონური მეთოდი“

3 პირველად

4 რეგისტრირებულია საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2018 წლის 11 მაისი №268-1.3-013284

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

English Version

Stationary source emissions - Determination of mass concentration of nitrogen oxides - Standard reference method: chemiluminescence

Emissions de sources fixes - Détermination de la concentration massique des oxydes d'azote - Méthode de référence normalisée : chimiluminescence

Emissionen aus stationären Quellen - Bestimmung der Massenkonzentration von Stickstoffoxiden - Standardreferenzverfahren: Chemilumineszenz

This European Standard was approved by CEN on 26 September 2016.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword.....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Symbols and abbreviations	13
4.1 Symbols.....	13
4.2 Abbreviated terms	14
5 Principle	14
5.1 General.....	14
5.2 Measuring principle	14
6 Description of the measuring system	15
6.1 General.....	15
6.2 Sampling and sample gas conditioning system.....	16
6.2.1 Sampling probe	16
6.2.2 Filter.....	17
6.2.3 Sample gas line.....	17
6.2.4 Sample gas conditioning system.....	17
6.2.5 Sample gas pump.....	18
6.2.6 Secondary filter.....	18
6.2.7 Flow controller and flow meter	18
6.3 Analyser equipment.....	18
6.3.1 General.....	18
6.3.2 Converter	19
6.3.3 Ozone generator	19
6.3.4 Reaction chamber	19
6.3.5 Optical filter	19
6.3.6 Photomultiplier tube	20
6.3.7 Ozone removal	20
7 Performance characteristics of the SRM.....	20
8 Suitability of the measuring system to the measurement task	21
9 Field operation.....	22
9.1 Measurement planning.....	22
9.2 Sampling strategy.....	22
9.2.1 General.....	22
9.2.2 Measurement section and measurement plane.....	22
9.2.3 Minimum number and location of measurement points.....	22
9.2.4 Measurement ports and working platform	22
9.3 Choice of the measuring system	23
9.4 Setting of the measuring system on site	23
9.4.1 General.....	23
9.4.2 Preliminary zero and span check, and adjustments	23
9.4.3 Zero and span checks after measurement	24

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

10	Ongoing quality control.....	25
10.1	General	25
10.2	Frequency of checks	25
11	Expression of results	26
12	Equivalence of an alternative method	27
13	Measurement report	27
Annex A (informative) Validation of the method in the field.....		28
A.1	General	28
A.2	Characteristics of installations	28
A.3	Repeatability and reproducibility in the field.....	29
A.3.1	General	29
A.3.2	Repeatability	30
A.3.3	Reproducibility.....	31
Annex B (informative) Sampling and conditioning configurations.....		32
Annex C (normative) Determination of conversion efficiency		33
C.1	General	33
C.2	First method: cylinder gases for calibration.....	33
C.3	Second method: gaseous phase titration	33
Annex D (informative) Examples of different types of converters		35
D.1	Quartz converter.....	35
D.2	Low temperature converter (molybdenum)	35
D.3	Stainless steel converter	35
Annex E (informative) Calculation of the uncertainty associated with a concentration expressed for dry gas and at an oxygen reference concentration		36
E.1	Uncertainty associated with a concentration expressed on dry gas.....	36
E.2	Uncertainty associated with a concentration expressed at a oxygen reference concentration.....	38
Annex F (informative) Example of assessment of compliance of chemiluminescence method for NO _x with requirements on emission measurements		40
F.1	General	40
F.2	Elements required for the uncertainty determinations.....	40
F.2.1	Model equation.....	40
F.2.2	Combined uncertainty	41
F.2.3	Expanded uncertainty.....	41
F.2.4	Determination of uncertainty contributions in case of rectangular distributions.....	43
F.2.5	Determination of uncertainty contributions by use of sensitivity coefficients	44
F.3	Example of an uncertainty calculation.....	44
F.3.1	Site specific conditions	44

F.3.2 Performance characteristics of the method..... 45

F.3.3 Calculation of concentration values 46

F.3.4 Determination of the uncertainty contributions..... 47

F.3.5 Result of uncertainty calculation 50

F.3.5.1 Standard uncertainties 50

F.3.5.2 Combined uncertainty..... 51

F.3.5.3 Expanded uncertainty 52

F.3.5.4 Evaluation of the compliance with the required measurement quality 52

Annex G (informative) Example of correction of data from drift effect 53

Annex H (informative) Significant technical changes..... 55

Bibliography..... 56

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

European foreword

This document (EN 14792:2017) has been prepared by Technical Committee CEN/TC 264 "Air quality", the secretariat of which is held by DIN.

This document supersedes EN 14792:2005.

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 July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

Annex H provides details of significant technical changes between this document and the previous edition.

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