SLOVENSKI STANDARD
SIST-TP CEN/TR 17304:2019

01-marec-2019

Gradbeni proizvodi - Ocenjevanje sproščanja nevarnih snovi - Določevanje emisij amoniaka iz celuloznih izolacijskih materialov v notranji zrak pri 90 % relativni vlažnosti

Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air of ammonia from cellulose insulation at 90 % RH

Bauprodukte - Bewertung der Freisetzung gefährlicher Stoffe - Bestimmung der Ammoniakemissionen von Zellulosedämmstoffen bei einer relativen Luftfeuchtigkeit von 90%

Produits de construction - Évaluation de l'émission de substances dangereuses - Détermination des émissions d'ammoniac dans l'air intérieur provenant des isolants cellulosiques à 90 % HR

Ta slovenski standard je istoveten z: **CEN/TR 17304:2018**

ICS:

13.020.99	Drugi standardi v zvezi z varstvom okolja	Other standards related to environmental protection
91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials

SIST-TP CEN/TR 17304:2019 **en**

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/TR 17304

November 2018

ICS 91.100.60

English Version

Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air of ammonia from cellulose insulation at 90 % RH

Produits de construction - Évaluation de l'émission de substances dangereuses - Détermination des émissions d'ammoniac dans l'air intérieur provenant des isolants cellulosiques à 90 % HR

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This Technical Report was approved by CEN on 5 November 2018. It has been drawn up by the Technical Committee CEN/TC 351.

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Ref. No. CEN/TR 17304:2018 E

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European foreword

This document (CEN/TR 17304:2018) has been prepared by Technical Committee CEN/TC 351 “Construction products: Assessment of release of dangerous substances”, the secretariat of which is held by NEN.

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

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association.

Introduction

This document was developed under the remit of Commission Regulation (EU) 2016/1017 of 23 June 2016 amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) as regards inorganic ammonium salts [1].

This document is derived from the horizontal standard EN 16516 [2] which specifies the horizontal reference method for testing the emission (release) of dangerous substances from construction products into indoor air.

This method uses a test chamber in which emissions are generated under conditions which are kept constant during the test.

1 Scope

This document specifies a method for the determination of emissions of ammonia from cellulose insulation products into indoor air at 90 % relative humidity (RH). It is based on the use of an emission test chamber and subsequent analysis of ammonia in test chamber air.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 16687, *Construction products - Assessment of release of dangerous substances - Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16687 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1 Terms relating to sampling and products

3.1.1
laboratory sample
sample or sub-sample(s) sent to or received by the laboratory

Note 1 to entry: The laboratory sample is the final sample from the point of view of sample collection but it is the initial sample from the point of view of the laboratory.

[SOURCE: IUPAC, 2.5.5 [3]]

3.1.2
population
totality of products under consideration

[SOURCE: adapted from ISO 11074:2005, 4.1.11 as in CEN/TR 16220:2011, 2.4.3 [4]]

3.1.3
sample
representative portion of product or material selected from a larger quantity of product or material

[SOURCE: IUPAC, 2.1.1 [3]]

3.1.4
sampling plan
predetermined procedure for the selection, withdrawal, preservation and transportation of product samples

[SOURCE: CEN/TR 16220:2011, 2.3 [4]]

3.1.5
scale
minimum quantity (mass, volume or units) of the product for which representative test results can be obtained

[SOURCE: CEN/TR 16220:2011, 2.4.4 [4]]

3.2 Terms relating to emissions into indoor air and associated laboratory testing

3.2.1
air change rate
ratio of the volume of air brought into the test chamber per hour and the volume of the empty test chamber

Note 1 to entry: Air change rate is expressed as h^{-1}.

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.1 [5]]

3.2.2
air flow rate ventilation rate
air volume entering into the emission test chamber per unit of time

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.2 [5]]

3.2.3
chamber blank value

test result obtained by carrying out the test procedure in the absence of a test portion/specimen

3.2.4
emission
liberation of chemical substances (ammonia) from a construction product (cellulose insulation product) into air

3.2.5
emission test chamber
enclosure with controlled operational parameters for the determination of vapour phase organic compounds emitted from construction products

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.6 [5]]

3.2.6
emission test chamber concentration
mass concentration of ammonia in test chamber air measured at the emission test chamber outlet

[SOURCE: EN ISO 16000-9:2006+AC:2007, 3.7 [5]]

3.2.7
intended conditions of use
conditions that a product is expected to experience during service life and that influence its emission behaviour

3.2.8
mass concentration of the compound in the reference room air
calculated concentration of ammonia in the reference room

3.2.9
product loading factor
ratio of exposed dimension of the test specimen to the empty test chamber volume

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.8 [5]]

3.2.10
product coverage
ratio of mass of the insulation product per unit area

[SOURCE: adapted from EN 15101-1:2013, 3.1.7 [6]]

3.2.11
reference room
room with specified dimensions, climate and ventilation used as a reference for calculating and reporting product emissions, assuming inert surfaces

Note 1 to entry: In EN 16516:2017 [2], a reference room is specified in 4.2.

Note 2 to entry: The reference room serves as a convention and is a model that does not represent a real room.

3.2.12
specific air flow rate
q
ratio of air change rate and product loading factor

Note 1 to entry: Specific air flow rate can be expressed as the area specific air flow rate qA, equivalent to ratio of the air flow rate and the surface area of the test specimen in [m^3/m^2*h], which is equivalent to the expression [m/h].

Note 2 to entry: Specific air flow rates can alternatively be volume specific (qv expressed in $m^3/(m^3*h)$), length specific (qL expressed in $m^3/(m*h)$), mass specific (qm expressed in $m^3/(kg*h)$), or unit specific (qu expressed in $m^3/(unit*h)$).

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.4 [5]]

3.2.13
specific emission rate SER (emission factor)
mass of ammonia per unit of product per unit of time at a given time from the start of the test

Note 1 to entry: This definition is intended to avoid confusion between the terms q (in 3.1.2.13) and qx with a subscript (qA, qL, qv, qm, qu used for specific air flow rate in EN ISO 16000-9). The specific emission rate can be related to area, length, volume, mass or unit, expressed as SERA in µg/(m^2*h), SERL in µg/(m*h), SERV in µg/(m^3*h), SERm in µg/(kg*h), or SERU expressed in µg/(u*h).

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.11 [5]]

3.2.14
test portion
quantity or volume removed from the test sample for analysis purposes, generally of known weight, area or volume

[SOURCE: IUPAC, 2.5.7 [3]]

3.2.15
test sample
sample, prepared from the laboratory sample from which test portions are removed for testing or for analysis

[SOURCE: IUPAC, 2.5.6 [3]]

3.2.16
test specimen
test portion specially prepared for emission testing in an emission test chamber in order to simulate the emission behaviour of the product under testing conditions

[SOURCE: adapted from EN ISO 16000-9:2006+AC:2007, 3.13 [5]]

3.3 Terms relating to determination of emitted substances

3.3.1
limit value
numerical limit derived from national, European or contractual provisions

4 Intended conditions of use, emission scenarios and European reference room

4.1 Intended conditions of use and emission scenario

The intended conditions of use describe the purpose, place and circumstances of typical application(s) of a construction product as defined in a product standard. This includes the intended use, (e.g. for what purpose, how the product typically is installed, etc.), and an emission scenario.

When determining emission into indoor air, the emission scenario specifies the climate and ventilation conditions of the air surrounding the product in the reference room. The actual condition(s) of use in reality may be different. It is not possible to evaluate emissions under all possible use scenarios. Therefore, this document specifies a set of conditions, such that all cellulose insulation products can be evaluated under comparable conditions.

These defined conditions assume a standardized installation of the product in the reference room with standardized dimensions, climate and ventilation.

4.2 Reference room and emission scenario

4.2.1 General

In this document, only one reference room and one set of conditions are specified and used as conventional references for any specification of emission rates and any calculation of the related concentrations of ammonia in indoor air.

If any piece of legislation or a particular application of the test requires a different reference room then the results may be transformed by calculations within the ranges where such calculations are valid (see Clause 7 and Clause 9).

The reference room serves as a convention and is a model that does not represent a real room.