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Bygg- och anläggningsprodukter – Bedömning av avgivning av farliga ämnen – Bestämning av emissioner i inomhusluft

Construction products: Assessment of release of dangerous substances – Determination of emissions into indoor air

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EUROPEAN STANDARD

EN 16516

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2017

ICS 13.040.20; 91.100.01

Supersedes CEN/TS 16516:2013

English Version

Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air

Produits de construction: Évaluation de l'émission de
substances dangereuses - Détermination des émissions
dans l'air intérieur

Bauprodukte: Bewertung der Freisetzung gefährlicher
Stoffe - Bestimmung der Emissionen in die
Innenraumluft

This European Standard was approved by CEN on 9 July 2017.

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.

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

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

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European foreword

This document (EN 16516:2017) 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.

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of an identical text or by endorsement, at the latest by April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

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 supersedes CEN/TS 16516:2013 .

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

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Introduction

This European Standard was developed under the remit of Mandate M/366 'Development of horizontal standardized assessment methods for harmonised approaches relating to dangerous substances under the Construction Products Directive (CPD)', addressing the preparation of horizontal measurement/test methods for the determination of emission of regulated dangerous substances from construction products into indoor air, soil, surface water and ground water. This mandate is a complement to the product mandates granted by the European Commission to CEN under European law for construction products. The harmonized products standards (hEN) developed in CEN under mandates from the European Commission specify construction product(s) as put on the market and address their intended conditions of use. The text of Mandate M/366 is available at www.cen351.org.

Details of relevant European or national regulations are available in the "TRIS database" [1].

This European Standard has gone through a robustness validation for identifying how small changes in specific testing parameters can influence the test result. This study also delivered data on repeatability within one testing laboratory (see Annex A) and has since been expanded to include reproducibility data from further round robin tests between different laboratories (see Annex A).

The responsibility for product specification lies with the product TCs, as described in CEN/TR 16496. This determination of emission into indoor air is carried out on products under their intended conditions of use. The intended use of a construction product is generally specified in the corresponding harmonized product standard. The specific emission rates determined using this European Standard are associated with application of the product in a defined European Reference Room under specified climate (temperature and humidity) and ventilation conditions. Converting the test results into a concentration in the air of the reference room is essential because it is not possible to evaluate emissions in all possible use scenarios.

The reference room dimensions, associated product loading factors, as well as climate and ventilation conditions are selected to represent the general indoor environment (see Clause 4). Based on the huge amount of available European experience, it was possible to identify one emission scenario and one reference room and associated set of product loading factors to be used.

This European Standard 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. These conditions are selected so that the test results can be expressed in terms of concentrations of dangerous substances in the air of the reference room (see Clause 7 and Clause 9). It should be noted that the test chamber is defined in terms of performance requirements. This responds to the requirement of Mandate M/366 for a horizontal approach while maintaining sufficient flexibility on chamber dimensions to ensure representative samples of different materials can be accommodated (see Clause 5). Clause 8 of this European Standard specifies how emitted regulated dangerous substances should be analysed.

This European Standard also addresses separately (see Clause 11 and Annex B) indirect methods that provide a result that is comparable or that correlates with the result of the reference method within their specified field of application. Such methods may be easier and/or cheaper to apply. They are in accordance with Mandate M/366 provided that their comparability or correlation to the reference test method has been demonstrated in their specific field of application.

The selection of one emission scenario and one reference room for evaluating emissions to indoor air is in general accordance with the approach taken in existing European national regulations and voluntary schemes relating to emissions from construction products into indoor air. It also accords with the horizontal requirements of Mandate M/366. The aim of this European Standard is not to develop a new testing method but to combine by normative references the use of existing standards. This approach is complemented, when necessary, with additional and/or modified requirements to ensure all

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construction products are evaluated under comparable conditions as required by the horizontal concept specified in Mandate M/366.

In summary, the horizontal test method specified in this European Standard determines the specific emission rate of vapour phase organic compounds from a construction product into indoor air. This can be converted into a concentration in the air of the reference room by calculation.

This European Standard has not been evaluated for the determination of 'steady-state' concentration of formaldehyde.

NOTE A European Standard (EN 717-1) exists for the determination of formaldehyde emissions from wood-based panels, in terms of 'steady-state' concentrations.