



BSI Standards Publication

Construction products: Assessment of release of dangerous substances — Guidance for a broader application of the CEN/TC 351 reference room

National foreword

This Published Document is the UK implementation of CEN/TR 17965:2023.

The UK participation in its preparation was entrusted to Technical Committee B/557, Construction products - Assessment of dangerous substances.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

This publication is not to be regarded as a British Standard.

© The British Standards Institution 2023
Published by BSI Standards Limited 2023

ISBN 978 0 399 22773 4

ICS 13.010.20; 91.100.01

Compliance with a Published Document cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 June 2023.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

TECHNICAL REPORT

CEN/TR 17965

RAPPORT TECHNIQUE

TECHNISCHER REPORT

June 2023

ICS 13.040.20; 91.100.01

English Version

Construction products: Assessment of release of dangerous substances - Guidance for a broader application of the CEN/TC 351 reference room

Produits de construction : Évaluation de l'émission de substances dangereuses - Possibilités d'extension du champ d'application de la pièce de référence du CEN/TC 351

Bauprodukte: Bewertung der Freisetzung von gefährlichen Stoffen - Leitfaden für eine weiterführende Anwendung des CEN/TC 351 Referenzraums

This Technical Report was approved by CEN on 28 May 2023. It has been drawn up by the Technical Committee CEN/TC 351.

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



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

	Page
European foreword	3
Introduction	4
1 Scope.....	5
2 Normative references.....	6
3 Terms and definitions.....	6
4 Evaluation of VOC emissions from building products: Principles.....	6
5 Background history.....	9
6 Implementation in national regulations	10
7 Implementation in voluntary schemes.....	11
7.1 General.....	11
7.2 German system	11
7.3 Finnish system	12
8 Examples of broader application of the reference room	12
8.1 General.....	12
8.2 Using the 30 m ³ reference room for other products	12
8.2.1 Introduction.....	12
8.2.2 Paints.....	13
8.2.3 Combustible air fresheners.....	13
8.2.4 Furniture.....	14
8.3 Other dimensions of the reference room	15
9 Conclusions	18
Bibliography	19

European foreword

This document (CEN/TR 17965:2023) 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 mandate given to CEN by the European Commission and the European Free Trade Association.

CEN/TC 351 prepared the European Standard EN 16516:2017+A1:2020 for the determination of emissions of volatile compounds from building products into indoor air. EN 16516:2017+A1:2020 also describes the method for the health-related evaluation of emissions using the concept of the so-called model room.

This document illustrates the potential use of the model room for the evaluation of emissions from indoor sources other than building products and/or for their intended use in reference indoor environments different from the reference room described in EN 16516:2017+A1:2020.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

Introduction

Determination of emissions of dangerous substances from building products into indoor air is carried out under their intended conditions of use. The intended condition of use of a construction product is generally specified in the corresponding harmonized product standard. The specific emission rates determined using EN 16516:2017+A1:2020 are associated with application of the product in a European Reference Room, under specified climate (temperature, relative humidity) and ventilation conditions. Converting the test results (Specific Emission Rates: SER) into concentrations in the air of a reference room is essential because it enables the comparison of those concentrations with reference values and facilitates the classification of product emissions on the basis of its potential impact on indoor air.

From a technical perspective the SER, as a product characteristic parameter, allows the calculation of the indoor exposure concentration deriving from any component (construction product, furniture, air fresheners, etc.) for any room scenario.

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

When determining emissions into indoor air, the emission scenario specifies the climate and ventilation conditions of the air surrounding the product in the reference room. The actual conditions of use in reality may be different, but it is not possible to evaluate emissions under all possible use scenarios. EN 16516 specifies a set of conditions that are generally agreed to be representative of the use of the product in "normal" indoor environments, such that all construction 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.

1 Scope

This document describes the concept of a reference room with respect to its application in the health-related evaluation of dangerous substance emissions from indoor products. The evolution of the reference room concept with respect to mandatory and voluntary labelling schemes for building products is outlined. The current limited application to other product types is described as well as the potential for broader application, either to additional products or for other exposure scenarios that may apply reference room/s with different characteristics.

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 16516:2017+A1:2020, *Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16516:2017+A1:2020 apply.

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

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

4 Evaluation of VOC emissions from building products: Principles

The evaluation of volatile organic compound (VOC) emissions from any indoor source with respect to their potential effects on health and comfort may be broken down into three main steps (adapted from JRC, ECA Report 18):

- 1) Characterization of VOC emissions from indoor sources into indoor air according to a standardized method,
- 2) Estimation of the exposure an individual may experience indoors due to emissions from a specific source (e.g. building products),
- 3) Evaluation of the effect of indoor exposure on human health.

This simplified risk assessment evaluation scheme is specified for the evaluation of VOC emissions from building materials using the following tools:

- a) Characterization of VOC emissions from building products is performed using EN 16516:2017+A1:2020 which is based on parts of EN ISO 16000 and former ENV 13419 standards,
- b) Estimation of the exposure to VOC emitted by building products is performed using the reference room concept,