BS EN 17331:2023

BSI Standards Publication

Construction products: Assessment of release of dangerous substances — Content of organic substances — Methods for extraction and analysis

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National foreword

This British Standard is the UK implementation of EN 17331:2023. It supersedes PD CEN/TS 17331:2019, which is withdrawn.

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.

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Published by BSI Standards Limited 2023

ISBN 978 0 539 19544 6

ICS 91.100.01

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2023.

Amendments/corrigenda issued since publication

Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17331

November 2023

ICS 91.100.01

Supersedes CEN/TS 17331:2019

English Version

Construction products: Assessment of release of dangerous substances - Content of organic substances - Methods for extraction and analysis

Produits de construction : Évaluation de l'émission de substances dangereuses - Teneur en matières organiques - Méthodes d'extraction et d'analyse

Bauprodukte: Bewertung der Freisetzung von gefährlichen Stoffen - Gehalt an organischen Stoffen - Extraktions- und Analyseverfahren

This European Standard was approved by CEN on 14 August 2023.

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Ref. No. EN 17331:2023 E

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Full document details: BS EN 17331:2023

Contents

Page

European foreword 3
Introduction 4
1 Scope 5
2 Normative references 5
3 Terms and definitions 6
4 Abbreviations 7
5 Sample preparation 8
6 Blank determination 9
7 Interferences 9
8 Selection of the suitable test method 9
9 Expression of results 11
10 Test performance 11
11 Test report 12
Annex A (informative) Validation results for content of organic substances in construction products 13
A.1 General 13
A.2 Precision data for digests from construction products 13
Annex B (informative) Overview of methods still under development and of alternative methods 19
Bibliography 21

Documents
Document Sharing Hub
Full document details: BS EN 17331:2023

European foreword

This document (EN 17331:2023) 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.

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 May 2024, and conflicting national standards shall be withdrawn at the latest by May 2024.

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 17331:2019.

In comparison with the previous edition, the following technical modifications have been made:

— the addition of performance data and data from intercomparison validation;

— alignment of terms and definitions within the working groups of CEN/TC 351, i.e. through the revised version of EN 16687.

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

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.

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, 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 the United Kingdom.

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Introduction

This document deals with the determination of the content of organic substances in construction products.

Following an extended evaluation of available methods for content and eluate analysis in construction products (CEN/TR 16045) it was concluded that existing methods for determining content of various organic substances in soil, sludge and waste are applicable to construction products. The present document therefore contains reference to such other standards for the substances of interest.

In the growing amount of product- and sector-oriented test methods it was recognized that many steps in test procedures are or could be used in test procedures for many products, materials and sectors. It was supposed that, by careful determination of these steps and selection of specific questions within these steps, elements of the test procedure could be described in a way that can be used for all materials and products or for all materials and products with certain specifications.

In this context a horizontal modular approach was adopted in CEN/TC 351. “Horizontal” means that the methods can be used for a wide range of materials and products with certain properties. “Modular” means that a test standard developed in this approach concerns a specific step in assessing a property and not the whole “chain of measurement” (from sampling to analyses). A beneficial feature of this approach is that “modules” can be replaced by better ones without jeopardizing the standard “chain”.

The modules that relate to the standards developed in CEN/TC 351 are specified in CEN/TR 16220, which distinguishes between the modules. This document belongs to the analytical step.

The use of modular horizontal standards implies the drawing of test schemes as well. Before executing a test on a certain material or product to determine certain characteristics it is recommended to draw up a protocol in which the adequate modules are selected and together form the basis for the entire test procedure.

Further guidance on the applicability of specific test methods can be found in CEN/TR 16496.

NOTE In Annex B (informative) several methods are mentioned which are, to the current knowledge of CEN/TC 351/WG 5 members, national standards or in the process of standardization (at European or national level).

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1 Scope

This document specifies analytical methods for the determination of the content of specific organic substances in construction products.

The following parameters are covered: BTEX, biocides, dioxins, furans and dioxin-like PCBs, mineral oil, nonylphenols, PAH, PCB, PCP, PBDE, and short-chain chlorinated paraffins.

NOTE 1 Methods still under development or available at national level only are listed in Annex B (informative) for PFOS, PFOA, HBCD and EOX. The methods can be included in the normative text as soon as full EN standards are available.

NOTE 2 Methods that have not been validated for construction products, because no suitable material was available at the time of the robustness validation, only are listed in Annex B (informative). This applies to organotin compounds, phenols and phthalates.

The methods listed in this document come from different fields and are expected to be suitable for organic substances in organic extracts from all types of constructions products.

The methods in this document are validated for the product types listed in Annex A (informative).

NOTE 3 Construction products include, e.g. mineral-based products (S), bituminous products (B), wood-based products (W), plastic and rubbers (P), sealants and adhesives (A), paints and coatings (C) and metals (M) (see also CEN/TR 16045). This document includes analytical methods for all matrices except metals.

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 14039, *Characterization of waste — Determination of hydrocarbon content in the range of C10 to C40 by gas chromatography*

EN 16190:2018, *Soil, treated biowaste and sludge — Determination of dioxins and furans and dioxin-like polychlorinated biphenyls by gas chromatography with high resolution mass selective detection (HR GC-MS)*

EN 16687:2023, *Construction products: Assessment of release of dangerous substances — Terminology*

EN 17087, *Construction products: Assessment of release of dangerous substances — Preparation of test portions from the laboratory sample for testing of release and analysis of content*

EN 17322, *Environmental Solid Matrices — Determination of polychlorinated biphenyls (PCB) by gas chromatography - mass selective detection (GC-MS) or electron-capture detection (GC-ECD)*

EN 17844, *Construction products: Assessment of release of dangerous substances — Determination of the content of polycyclic aromatic hydrocarbons (PAH) and of benzene, toluene, ethylbenzene and xylenes (BTEX) — Gas-chromatographic method with mass spectrometric detection*

EN 17845, *Construction products: Assessment of release of dangerous substances — Determination of biocide residues using liquid chromatography with mass spectrometric detection (LC-MS/MS)*

EN ISO 22032, *Water quality — Determination of selected polybrominated diphenyl ethers in sediment and sewage sludge — Method using extraction and gas chromatography/mass spectrometry (ISO 22032)*

CEN/TS 16182:2012, *Sludge treated biowaste and soil — Determination of nonylphenols (NP) and nonylphenol-mono- and diethoxylates using gas chromatography with mass selective detection (GC-MS)*

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CEN/TR 14823, *Durability of wood and wood-based products — Quantitative determination of pentachlorophenol in wood - Gas chromatographic method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16687:2023 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
blank value
test result obtained by carrying out the test procedure in the absence of a test portion

[SOURCE: EN 16687:2023, 3.3.1.10; modified – Note 1 to entry removed]

3.2
extract
solution resulting from extraction of a sample with a solvent

[SOURCE: EN 16687:2023, 3.2.2.13]

3.3
extraction
dissolution of substances in a solvent for subsequent chemical analysis

[SOURCE: EN 16687:2023, 3.2.2.14; modified – Note 1 to entry removed]

3.4
laboratory sample
sample or subsample(s) sent to or received by the laboratory

[SOURCE: EN 16687:2023, 3.2.2.1; modified – Notes to entry removed]

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