



SLOVENSKI STANDARD SIST EN 17332:2024

01-april-2024

Nadomešča:

SIST-TS CEN/TS 17332:2019

Gradbeni proizvodi - Ocenjevanje sproščanja nevarnih snovi - Analiza organskih snovi v izlužkih

Construction products - Assessment of release of dangerous substances - Analysis of organic substances in eluates

Bauprodukte - Bewertung der Freisetzung von gefährlichen Stoffen - Analyse von organischen Stoffen in Eluaten

Produits de construction - Évaluation de l'émission de substances dangereuses - Analyse des substances organiques dans les éluats

Ta slovenski standard je istoveten z: **EN 17332:2023**

<https://standards.iteh.ai/catalog/standards/sist/ded93fdc-3c2d-4069-8a83-c56efbe90f27/sist-en-17332-2024>

ICS:

13.020.99	Drugi standardi v zvezi z varstvom okolja	Other standards related to environmental protection
91.100.01	Gradbeni materiali na splošno	Construction materials in general

SIST EN 17332:2024

en,fr,de

EUROPEAN STANDARD

EN 17332

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2023

ICS 91.100.01

Supersedes CEN/TS 17332:2019

English Version

Construction products: Assessment of release of dangerous substances - Analysis of organic substances in eluates

Produits de construction : Évaluation de l'émission de substances dangereuses - Analyse des substances organiques dans les éluats

Bauprodukte: Bewertung der Freisetzung von gefährlichen Stoffen - Analyse von organischen Stoffen in Eluaten

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

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

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Contents	Page
European foreword	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	6
4 Abbreviations.....	8
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 analysis of organic substances in eluates from construction products	14
A.1 General.....	14
A.2 Precision data for eluates from construction products	14
Annex B (informative) Overview of alternative methods and of methods for biocidal and plant protection products.....	20
Bibliography	22

European foreword

This document (EN 17332:2023) 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 17332:2019.

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.

EN 17332:2023 (E)

Introduction

This document deals with the determination of organic substances in eluates which have been obtained by leaching of construction products.

Following an extended evaluation of available methods for content and eluate analysis in construction products (CEN/TR 16045) it was concluded that eluate analysis methods are very similar to analytical methods used to determine organic substances in water. The present document is similar in structure to EN 16192.

This document is part of a modular horizontal approach and belongs to the analytical step. An overview of all modules which belong to a chain of measurement and the manner how modules are selected is given in CEN/TR 16220.

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 is 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 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.

This module relates to EN 16637-1, EN 16637-2, and EN 16637-3.

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1 Scope

This document specifies methods for the determination of specific organic substances in aqueous eluates from leaching of construction products.

The following parameters are covered: pH, electrical conductivity, biocides, bisphenol A, BTEX, dioxins and furans, DOC, epichlorohydrin, mineral oil, nonylphenols, PAH, PBDE, PCB, dioxin-like PCB, PCP, phenols and phthalates.

NOTE 1 Methods still under development or available at national level only are listed in Annex B (informative) for certain amines, AOX, and biocidal and plant protection products.

NOTE 2 Methods that have not been validated for aqueous eluates from leaching of 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.

The methods in this document come from different fields, mainly the analysis of water, and are applicable for the eluates from construction products. They are validated for eluates of 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.

The selection of the method to be applied is based on the product matrix and the required sensitivity.

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 1484, *Water analysis — Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)*

EN 12673, *Water quality — Gas chromatographic determination of some selected chlorophenols in water*

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EN 14207, *Water quality — Determination of epichlorohydrin*

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

EN 16694, *Water quality — Determination of selected polybrominated diphenyl ether (PBDE) in whole water samples — Method using solid phase extraction (SPE) with SPE-disks combined with gas chromatography — Mass spectrometry (GC-MS)*

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 27888, *Water quality — Determination of electrical conductivity (ISO 7888)*

EN ISO 5667-3, *Water quality — Sampling — Part 3: Preservation and handling of water samples (ISO 5667-3)*

EN ISO 9377-2:2000, *Water quality — Determination of hydrocarbon oil index — Part 2: Method using solvent extraction and gas chromatography (ISO 9377-2:2000)*

EN ISO 10523, *Water quality — Determination of pH (ISO 10523)*

EN 17332:2023 (E)

EN ISO 14402, *Water quality — Determination of phenol index by flow analysis (FIA and CFA)(ISO 14402)*

EN ISO 15680, *Water quality — Gas-chromatographic determination of a number of monocyclic aromatic hydrocarbons, naphthalene and several chlorinated compounds using purge-and-trap and thermal desorption (ISO 15680)*

EN ISO 18856:2005, *Water quality — Determination of selected phthalates using gas chromatography/mass spectrometry (ISO 18856:2004)*

EN ISO 18857-2, *Water quality — Determination of selected alkylphenols — Part 2: Gas chromatographic-mass spectrometric determination of alkylphenols, their ethoxylates and bisphenol A in non-filtered samples following solid-phase extraction and derivatisation (ISO 18857-2)*

ISO 17858, *Water quality — Determination of dioxin-like polychlorinated biphenyls — Method using gas chromatography/mass spectrometry*

ISO 18073, *Water quality — Determination of tetra- to octa-chlorinated dioxins and furans — Method using isotope dilution HRGC/HRMS*

ISO 20595, *Water quality — Determination of selected highly volatile organic compounds in water — Method using gas chromatography and mass spectrometry by static headspace technique (HS-GC-MS)*

ISO 28540, *Water quality — Determination of 16 polycyclic aromatic hydrocarbons (PAH) in water — Method using gas chromatography with mass spectrometric detection (GC-MS)*

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**alternative method**

method calibrated against the reference test method used to determine a value of release/emission/content of substances directly correlating with the test results from the reference test

[SOURCE: EN 16687:2023, 3.3.1.5; modified – Notes to entry removed]

3.2**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]

3.3**eluate**

solution obtained from a leaching test

[SOURCE: EN 16687:2023, 3.3.2.8; 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]

3.5**leaching test**

laboratory test for the determination of the release of substances from a construction product into water or an aqueous solution

[SOURCE: EN 16687:2023, 3.3.2.1]

3.6**method detection limit****MDL**

lowest analyte concentration that can be detected with a specified analytical method including sample preparation with a defined statistical probability

[SOURCE: EN 16687:2023, 3.3.1.12; modified – Note 1 to entry removed]

3.7**sample**

portion of material selected from a larger quantity of material

[SOURCE: EN 16687:2023, 3.2.1.5; modified – Notes to entry removed]

3.8**test portion**

analytical portion

amount of the test sample taken for testing/analysis purposes, usually of known dimension, mass or volume

[SOURCE: EN 16687:2023, 3.2.2.3; modified – Examples removed]

3.9**test sample**

analytical sample

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

[SOURCE: EN 16687:2023, 3.2.2.2]

EN 17332:2023 (E)**4 Abbreviations**

For the purposes of this document, the following abbreviations apply.

AED	Atomic emission detector
AOX	Adsorbable organically bound halogens
BTEX	Alkylated benzenes: sum of benzene, toluene, ethylbenzene and xylenes
CFA	Continuous flow analysis
DIBt	Deutsches Institut für Bautechnik (German Centre of Competence for Construction, www.dibt.de)
DOC	Dissolved organic carbon
ECD	Electron capture detector
FIA	Flow injection analysis
GC	Gas chromatography
HPLC	High performance liquid chromatography
NOTE	High pressure liquid chromatography is an (outdated) synonym.
LLE	Liquid-liquid extraction, also known as solvent extraction and partitioning
LOD	Limit of detection
MS	Mass spectrometry; Mass selective detection
NP	Nonylphenol(s)
PAH	Polycyclic aromatic hydrocarbon(s)
PBDE	Polybrominated diphenyl ether(s)
PCB	Polychlorinated biphenyl(s)
PCP	Pentachlorophenol
SPE	Solid phase extraction
TOC	Total organic carbon

5 Sample preparation

Laboratory samples for analysis are obtained according to leaching standards, such as EN 16637-2 and EN 16637-3, taking into account sample preservation requirements as specified in EN ISO 5667-3.

Precautions shall be taken before and during transport as well as during the time in which the samples are preserved in the laboratory before being analysed, to avoid alteration of the sample (see CEN/TR 16220).

The eluate shall be analysed for the total content of substances of interest. If adsorption occurs between the preparation of the eluate and the analysis it is necessary to ensure by appropriate methods (e.g. redissolution) that the total content of the parameters of interest is determined. If the eluate results from a procedure including 0,45 µm membrane filtration analytical results refer to the content dissolved by the leaching process.

Eluates are susceptible to be changed to different extents as a result of physical, chemical or biological reactions which can take place between the time of leaching and the analysis. It is therefore essential to