

ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 17195:2023

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

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

Produits de construction - Évaluation du
relargage de substances dangereuses -
Analyse des substances inorganiques
dans les éluats

11/2023



National Foreword

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English Version

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

Produits de construction - Évaluation du relargage de
substances dangereuses - Analyse des substances
inorganiques dans les éluats

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

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

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European foreword

This document (EN 17195:2023) 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of an identical text or by endorsement, at the latest by May 2024, and conflicting national standards shall be withdrawn at the latest by May 2024.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 17195:2018.

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.

Introduction

Following an extended evaluation of available methods for content analysis in construction products (CEN/TR 16045) it was concluded that eluate analysis methods are very similar to analytical methods used to determine content after digestion of a solid matrix.

This document has been adopted from the work carried out in the context of CEN/TC 292 and is very similar to EN 16192.

This document is part of a modular horizontal approach which 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). Beneficial features of this approach are that modules can be replaced by better ones without jeopardizing the standard chain and duplication of work of in different Technical Committees for Products can be avoided as far as possible.

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 construction product to determine certain characteristics, it is necessary to draw up a protocol in which the adequate modules are selected and together form the basis for the entire test procedure.

1 Scope

This document specifies analytical methods for the determination of major, minor and trace elements and of anions in aqueous eluates from construction products. It refers to the following 67 elements:

Aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), bismuth (Bi), boron (B), cadmium (Cd), calcium (Ca), cerium (Ce), caesium (Cs), chromium (Cr), cobalt (Co), copper (Cu), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), gallium (Ga), germanium (Ge), gold (Au), hafnium (Hf), holmium (Ho), indium (In), iridium (Ir), iron (Fe), lanthanum (La), lead (Pb), lithium (Li), lutetium (Lu), magnesium (Mg), manganese (Mn), mercury (Hg), molybdenum (Mo), neodymium (Nd), nickel (Ni), palladium (Pd), phosphorus (P), platinum (Pt), potassium (K), praseodymium (Pr), rubidium (Rb), rhenium (Re), rhodium (Rh), ruthenium (Ru), samarium (Sm), scandium (Sc), selenium (Se), silicon (Si), silver (Ag), sodium (Na), strontium (Sr), sulphur (S), tellurium (Te), terbium (Tb), thallium (Tl), thorium (Th), thulium (Tm), tin (Sn), titanium (Ti), tungsten (W), uranium (U), vanadium (V), ytterbium (Yb), yttrium (Y), zinc (Zn), and zirconium (Zr)

and to the following four anions: Cl⁻, Br⁻, F⁻, SO₄²⁻.

This document also describes how to measure general parameters like pH, electrical conductivity, DOC/TOC.

The methods in this document are applicable to construction products.

NOTE Construction products include e.g. mineral-based products (S); bituminous products (B); metals (M); wood-based products (W); plastics and rubbers (P); sealants and adhesives (A); paints and coatings (C), see also CEN/TR 16045.

The selection of analytical methods to be applied is based on the required sensitivity of the method, which is provided for all combinations of substance and analytical procedure.

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

EN 17197, *Construction products: Assessment of release of dangerous substances — Analysis of inorganic substances in eluates and digests — Analysis by inductively coupled plasma optical emission spectrometry (ICP-OES)*

EN 17200, *Construction products: Assessment of release of dangerous substances — Analysis of inorganic substances in eluates and digests — Analysis by inductively coupled plasma mass spectrometry (ICP-MS)*

EN 27888, *Water quality — Determination of electrical conductivity (ISO 7888:1985)*

EN ISO 5667-3, *Water quality — Sampling — Part 3: Preservation and handling of water samples (ISO 5667-3:2018)*

EN ISO 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate (ISO 10304-1:2007)*

EN ISO 10523, *Water quality — Determination of pH (ISO 10523:2008)*

EN ISO 12846, *Water quality — Determination of mercury — Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846:2012)*

EN ISO 15586, *Water quality — Determination of trace elements using atomic absorption spectrometry with graphite furnace (ISO 15586:2003)*

EN ISO 17852, *Water quality — Determination of mercury — Method using atomic fluorescence spectrometry (ISO 17852:2006)*

ISO 10359-1, *Water quality — Determination of fluoride — Part 1: Electrochemical probe method for potable and lightly polluted water*

ISO 17378-1, *Water quality — Determination of arsenic and antimony — Part 1: Method using hydride generation atomic fluorescence spectrometry (HG-AFS)*

ISO 17378-2, *Water quality — Determination of arsenic and antimony — Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)*

ISO/TS 17379-1, *Water quality — Determination of selenium — Part 1: Method using hydride generation atomic fluorescence spectrometry (HG-AFS)*

ISO/TS 17379-2, *Water quality — Determination of selenium — Part 2: Method using hydride generation atomic absorption spectrometry (HG-AAS)*

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

eluate

solution obtained from a leaching test

[SOURCE: EN 16687:2023, 3.3.2.8; modified – Note 1 to entry removed]

3.2

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]

3.3

leachant

liquid that is brought into contact with the test portion in the leaching procedure

[SOURCE: EN 16687:2023, 3.3.2.7; modified – Note 1 to entry removed]