

English Version

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

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

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

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

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

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European foreword

This document (CEN/TS 17332:2019) 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.

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Introduction

This Technical Specification 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 [1]) 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 [2].

This standard 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 [3].

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 necessary 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 CEN/TS 16637-1 [4], CEN/TS 16637-2 and CEN/TS 16637-3.

1 Scope

This document specifies existing 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 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. 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.

NOTE 3 Construction products include, e.g. mineral-based products, bituminous products, wood-based products, polymer-based products and metals. 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*

EN 14207, *Water quality — Determination of epichlorohydrin*

EN 15637, *Foods of plant origin — Determination of pesticide residues using LC-MS/MS following methanol extraction and clean-up using diatomaceous earth*

CEN/TS 16637-2, *Construction products — Assessment of release of dangerous substances — Part 2: Horizontal dynamic surface leaching test*

CEN/TS 16637-3, *Construction products — Assessment of release of dangerous substances — Part 3: Horizontal up-flow percolation test*

EN 16687:2015, *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 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, *Water quality — Determination of hydrocarbon oil index — Part 2: Method using solvent extraction and gas chromatography (ISO 9377-2)*

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

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 17294-1:2006, *Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) — Part 1: General guidelines (ISO 17294-1:2004)*

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

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 following terms and definitions apply.

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

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

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 method

Note 1 to entry: An alternative method can be, e.g. a modified reference test method or an indirect test method which is based on another test method. See also “indirect test”.

Note 2 to entry: In type testing reference test methods have always to be used.

[SOURCE: EN 16687:2015, 4.1.5]