PD CEN/TS 17459:2022

BSI Standards Publication

Construction products: Assessment of release of dangerous substances — Determination of ecotoxicity of construction product eluates

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National foreword

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

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English Version

Construction products: Assessment of release of dangerous substances - Determination of ecotoxicity of construction product eluates

Produits de construction : évaluation de l'émission de substances dangereuses - Détermination de l'écotoxicité des éluats de produits de construction

Bauprodukte: Bewertung der Freisetzung von gefährlichen Stoffen - Bestimmung der Ökotoxizität von Eluaten aus Bauprodukten

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European foreword

This document (CEN/TS 17459:2022) 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 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.

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Introduction

The regulatory and technical background for this document is explained in CEN/TR 17105 [1]. General information on ecotoxicity assessment is also provided there. This document describes the assessment of ecotoxicological properties of eluates of construction products received from horizontal leaching tests harmonized by CEN/TC 351.

Aquatic ecotoxicity tests can be applied to eluates of construction products which come into contact with soil or water in their intended use as described in CEN/TR 16098:2010, 3.2.2.2 *Products relevant for soil, surface water or groundwater* [3] and in CEN/TS 16637-1. The test procedure specified in this document covers construction products defined in the scope. Validation data are provided in Annex A.

This document is recommended to Technical Committees for construction products (product TCs), if they have been mandated to address ecotoxicity in their product standards or if they are interested to include ecotoxicity in a dossier prepared in the context of qualifications for a “without testing” status. This document is also recommended to EOTA in case there is a wish to include ecotoxicity testing in European Assessment Documents.

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1 Scope

1) This document specifies a test procedure that combines horizontal leaching tests with ecotoxicity tests for the assessment of eluates of the construction products specified in this scope subjected to wet conditions in outdoor use.

2) The method specified in this document is intended for the determination of the potential ecotoxicity of eluates extracted out of construction products containing constitutional organic components of main categories of product matrices P (plastics and rubbers), A (sealants and adhesives) or C (paints and coatings) according to CEN/TR 16045.

3) Construction products mainly made of inorganic materials: main categories of product matrices S (silica-based and calcareous products) and M (metals) according to CEN/TR 16045 are excluded, unless:

   — the liquid or paste product hardens in direct contact with soil or groundwater; and

   — the used binder contains > 50 % organics by mass.

   NOTE 1 This exception mainly refers to products used for soil injection and stabilization, e.g. grouts.

   Also, the method is not intended for construction products made of treated or untreated solid wood in main category of product matrix W (wood-based products) according to CEN/TR 16045. For engineered bio-based products the test procedure can be of interest.

4) This document is not applicable for the assessment of terrestrial ecotoxicity of construction products.

   NOTE 2 Terrestrial ecotoxicity tests for construction products are described in CEN/TR 17105.

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.

CEN/TS 16637-1:2018, *Construction products - Assessment of release of dangerous substances - Part 1: Guidance for the determination of leaching tests and additional testing steps*

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

EN 12457-1, *Characterisation of waste - Leaching - Compliance test for leaching of granular waste materials and sludges - Part 1: One stage batch test at a liquid to solid ratio of 2 l/kg for materials with high solid content and with particle size below 4 mm (without or with size reduction)*

EN ISO 5667-16, *Water quality - Sampling - Part 16: Guidance on biotesting of samples (ISO 5667-16)*

EN ISO 6341, *Water quality - Determination of the inhibition of the mobility of Daphnia magna Straus (Cladocera, Crustacea) - Acute toxicity test (ISO 6341)*

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EN ISO 8692, *Water quality - Fresh water algal growth inhibition test with unicellular green algae (ISO 8692)*

EN ISO 9408, *Water quality - Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium by determination of oxygen demand in a closed respirometer (ISO 9408)*

EN ISO 9439, *Water quality - Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium - Carbon dioxide evolution test (ISO 9439)*

EN ISO 11348-1, *Water quality - Determination of the inhibitory effect of water samples on the light emission of Vibrio fischeri (Luminescent bacteria test) - Part 1: Method using freshly prepared bacteria (ISO 11348-1)*

EN ISO 15088, *Water quality - Determination of the acute toxicity of waste water to zebrafish eggs (Danio rerio) (ISO 15088)*

EN ISO 20079, *Water quality - Determination of the toxic effect of water constituents and waste water on duckweed (Lemna minor) - Duckweed growth inhibition test (ISO 20079)*

ISO 11350, *Water quality — Determination of the genotoxicity of water and waste water — Salmonella/microsome fluctuation test (Ames fluctuation test)*

ISO 13829, *Water quality — Determination of the genotoxicity of water and waste water using the umu-test*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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
biotesting
technique for evaluating the biological effect, either qualitatively or quantitatively, of various substances in water by means of changes in a specified biological activity

Note 1 to entry: Biotesting is a broader term than ecotoxicity test and covers also for instance biodegradability tests.

[SOURCE: ISO 6107:2021, 3.65]

3.2
biodegradation
mineralization of organic compounds by bacteria and fungi to carbon dioxide, water and inorganic compounds

3.3
control
mixture of control medium and organisms used in the test without test sample

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