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Construction products - Assessment of release of dangerous substances - Part 1: Guidance for the determination of leaching tests and additional testing steps

Produits de construction - Evaluation de l'émission de substances dangereuses - Partie 1 : Guide pour la spécification des essais de lixiviation et des étapes supplémentaires d'essai

Bauprodukte - Bewertung der Freisetzung von gefährlichen Stoffen - Teil 1: Leitfaden für die Festlegung von Auslaugprüfungen und zusätzlichen Prüfschritten

This Technical Specification (CEN/TS) was approved by CEN on 13 May 2018 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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European foreword

This document (CEN/TS 16637-1:2018) 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 supersedes CEN/TS 16637-1:2014.

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

This Technical Specification deals with the determination and use of test methods for leaching of construction products taking specific situations into account. It specifies preconditions under which leaching tests for monolithic products and for granular products need to be selected.

Background information on characterization of leaching behaviour of construction products can be found in Technical Reports provided by CEN/TC 351 (i.e. CEN/TR 16098 [1], and CEN/TR 16496 [2]).]

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This informative introduction describes the interactions and interrelations between the release tests developed to assess the release of regulated dangerous substances (RDS) from construction products into soil, surface water and groundwater in the framework of Mandate M/366. The horizontal test methods developed under the Mandate M/366 are intended to be used to show compliance with notified regulations. The tests cover the release of substances from construction products and in particular, those that are regulated in notified regulations in one or more EU Member States.

CEN/TS 16637-1 specifies how the CEN Technical Product Committees and EOTA experts should determine the appropriate leaching test for the determination of the release of RDS from a construction product into soil, surface water and groundwater.

CEN/TS 16637-2 describes a horizontal test to assess surface dependent release from monolithic, plate-like or sheet-like construction products while CEN/TS 16637-3 describes a horizontal test to assess release from granular construction products. The test methods can be used for both steps in the hierarchy (type testing (TT) and factory production control (FPC)) and are supposed to be used as the reference test for the intended uses and conditions specified in CEN/TS 16637-1. In this hierarchy of testing conditionally "indirect tests" can be used, but are not specified.

The release of substances upon contact with water results in a potential risk to the environment during the intended use of construction products. The intent of these tests is to identify the leaching behaviour of construction products and thereby allow assessments of the release of RDS from such products to soil, surface water and groundwater under intended conditions of use in relation to CE marking and assessment and verification of constancy of performance.

Technical Product Committees are expected to apply the test standards developed in CEN/TC 351 for their products in order to test the potential release of RDS to soil, surface water and groundwater. FprCEN/TS 16637-1 is intended to provide clear procedures to determine which test method is appropriate for a given product. CEN Technical Product Committees are referred to the informative Annex A and Annex B of this document and to CEN/TR 16098 [1], for background information on the following aspects:

a) description of the intended conditions of use of the construction product (e. g. above ground exposed to the precipitation, or shielded from direct infiltration, in surface or groundwater) with respect to the release of RDS into soil, surface water and groundwater;

b) identification of main release mechanisms.

This document does not address impact assessment. However, since the test methods described in the document may be used in the context of impact assessments and regulation based on impact assessments, some guidance on this issue is provided in Annex A (informative).

In addition to existing validation results, in 2011 CEN/TC 351 began an extensive research program on robustness validation of the existing tank leaching and percolation tests [3]. This was carried out by a consortium of European experts on 20 construction products to unify differences from the protocols of the different CEN Members and to check the influence of testing conditions on the test result (e. g. temperature, flow rate, renewal scheme). The results of the research program confirmed the robustness of the horizontal tests known from former works. Conclusions from the program have been implemented into the Technical Specifications for the test methods. However, the performance of the leaching test regarding repeatability and reproducibility is dependent on the tested construction product and on the testing conditions. When these Technical Specifications of the horizontal leaching tests are adopted by CEN, the leaching tests referred to in these Technical Specifications will not yet be fully validated. No data will be available on repeatability and reproducibility for the range of construction products. For other, sometimes comparable matrices performance data are available from national as well as EU validation studies.

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1 Scope

(1) This document allows the identification of the appropriate leaching test method for the determination of the release of RDS from construction products into soil, surface water and groundwater. This document provides a stepwise procedure for the determination of appropriate release tests, including:

a) determination of the test method based on general product properties;

b) choice of the test method using specific product properties.

(2) Furthermore, this Technical Specification gives general guidance for CEN Technical Product Committees and EOTA WGs on basic aspects (sampling, sample preparation and storage, eluate treatment, analysis of eluates and documentation) to be specified in the relevant product standards or ETAs.

(3) Metallic products and coatings on metallic products are not considered in the determination scheme of this Technical Specification since the test methods in CEN/TS 16637-2 (tank test) and CEN/TS 16637-3 (column test) are not appropriate for the testing of these construction products due to a different release mechanism (solubility control).

NOTE See Annex F.

(4) It is assumed that intermittent contact with water (e. g. exposure to rainwater) is tested — by convention — as permanent contact. For some coatings, (e. g. some renders with organic binders according to EN 15824 [4]) in intermittent contact to water, physical and chemical properties might be altered in permanent contact with water. These products are not considered in the determination scheme of this Technical Specification since the test method in CEN/TS 16637-2 is not appropriate for the testing of these construction products (in this case EN 16105 [5] might be an alternative method).

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 16637-2:2014, *Construction products - Assessment of release of dangerous substances - Part 2: Horizontal dynamic surface leaching test*

CEN/TS 16637-3:2016, *Construction products - Assessment of release of dangerous substances - Part 3: Horizontal up-flow percolation test*

EN 16687, *Construction products - Assessment of release of dangerous substances - Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16687 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

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