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BSI Standards Publication

Construction products - Assessment of release of dangerous substances - Guidance on the use of ecotoxicity tests applied to construction products

bsi.

National foreword

This Published Document is the UK implementation of CEN/TR 17105:2017.

BSI, as a member of CEN, is obliged to publish CEN/TR 17105:2017. However, attention is drawn to the fact that during development of this Technical Report, the UK committee voted against its approval.

The UK, in common with Austria, Denmark, Finland, France and the Netherlands voted against this Technical Report (TR) at draft stage, however it attracted sufficient support from other national standards bodies to gain acceptance and publication. The UK committee is of the opinion that the scope of this TR is not in line with the original mandate for the work. The scope of CEN/TR 17105 gives the impression that the TR is applicable to any construction product with a harmonised European Standard falling within the scope of CEN/TC 351, where this was never the intention. The UK committee also advises that the tests are only for use when other methods of assessment (based on leaching, emissions or content) are not viable and also that products excluded from the scope of the leaching tests adopted by CEN/TC 351 are not to be tested using these ecotoxicity tests.

The UK participation in its preparation was entrusted to Technical Committee B/557, Construction products - Assessment of dangerous substances.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Construction products - Assessment of release of dangerous substances - Guidance on the use of ecotoxicity tests applied to construction products

Produits de construction - Evaluation de l'émission de substances dangereuses ¿ Préconisations concernant l'utilisation des essais visant à évaluer l'écotoxicité des produits de construction

Bauprodukte - Bewertung der Freisetzung von gefährlichen Stoffen - Leitfaden für die Anwendung von ökotoxikologischen Untersuchungen auf Bauprodukte

This Technical Report was approved by CEN on 14 May 2017. It has been drawn up by the Technical Committee CEN/TC 351.

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Contents

Page

European foreword

This document (CEN/TR 17105:2017) 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 mandate given to CEN by the European Commission and the European Free Trade Association.

This Technical Report gives guidance for the combination of the recommended horizontal leaching tests harmonized by CEN/TC 351 with existing biological test methods for the assessment of ecotoxicological properties of eluates of construction products.

Guidance regarding biological tests for the effects of construction products on soil organisms is also included. This document takes into account relevant information that had become available by March 2016. This document is intended as easy-to-use guidance especially for the Group of Notified Bodies, test laboratories and EOTA. Technical committees for construction products (product TCs) are expected to benefit from the information given in the report, 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.

Introduction

Ecotoxicological analysis of construction products and their eluates and biodegradability of the organic substances in eluates belong to the essential characteristics covered by the basic requirement for construction works "hygiene, health and the environment" from Annex 1 of the Construction Products Regulation [1]. Under the European Commission's mandate M/366 (see mandate database at http://ec.europa.eu/growth/tools-databases/mandates) and according to the Indicative List (see https://www.nen.nl/ under search term CEN/TC 351) which specifies the mandated parameters CEN/TC 351 has been assigned to deal with these essential characteristics. Now that the mandated leaching tests from CEN/TC 351 (CEN/TS 16637-2, CEN/TS 16637-3) [2], [3] are available and also work on the methods for the chemical analysis of eluates has progressed, CEN/TC 351 has included a Technical Report on ecotoxicity / biodegradability in its active programme of work. The background for the decision to cover this topic was presented in an open expert workshop in Brussels in April 2014. The conclusions and recommendations of the workshop are presented in Annex A.

The regulatory background for the work is explained in Annex B and information on its possible interface with data generated under the REACH Regulation is given in Annex C. In the context of harmonized specifications for construction products currently only Germany requests performance data on ecotoxicity/biodegradability in certain cases, i.e. when and where a chemical analysis and assessment of the eluates of construction products is considered to be too onerous or not possible due to the lack of analytical methods/data. Examples of products addressed are fire protective products and fire stopping and fire sealing products depending on their ingredients. Ecotoxicity assessment is considered to be especially relevant for the building and for the demolition phase in the life cycle of construction works. These life cycle phases have been covered by the framework of the Construction Products Regulation since 2013.

The majority of existing internationally harmonized ecotoxicity tests were developed firstly to assess the ecotoxic potential of chemicals, waste water or contaminated soils. More recently, these tests have been successfully applied to waste and waste eluates [4] to [7]. These methods can be applied with some modifications for the ecotoxicological characterization of construction products and their eluates. Several studies as well as an international round robin test have been conducted to validate some test methods for construction product eluates and the results have been used as background information [8] to [13]. The validation of the methods for construction products is not yet complete. Further validation of the recommended test procedure is needed, if this TR is intended to be further developed into a CEN/TS or EN (to be decided later).

1 Scope

This Technical Report gives information on existing methods to test ecotoxicity of construction products. Information is given on how to combine recommended leaching tests with biological tests for the aquatic environment and how to avoid possible problems, when performing biological tests. Also suitable terrestrial tests on granular construction products diluted with artificial soil are proposed for a minimum test battery.

Reference has been made as far as possible to existing International and European Standards and guidelines.

The test procedure described in this Technical Report is technically suitable for all construction product eluates and for terrestrial tests on granular or paste-like construction products. However, from the point of view of test efficiency it is recommended mainly for products containing organics or polymers in case chemical analysis alone is not deemed to be sufficient. For inorganic products the chemical analysis is seen as straightforward in construction product eluates and therefore the added value of data received through ecotoxicity tests is seen as limited.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
biodegradation
mineralization of organic compounds by bacteria and fungi to carbon dioxide, water and inorganic compounds

2.2
control
mixture of control medium and organisms used in the test without test sample

2.3
control medium
combination of water and additives (e.g. nutrients, salts) used in the test

2.4
dilution level
D
reciprocal value of the volume fraction of test sample in dilution water in which the test is conducted

EXAMPLE 250 ml of test sample in a total volume of 1 000 ml (volume fraction of 25 %) represents dilution level $D = 4$.

[SOURCE: EN ISO 15088:2008 [14], 3.2, modified - "waste water" replaced by "test sample"]

2.5
dilution soil
soil added to the test sample to prepare a series of defined dilutions

Note 1 to entry: The origin and composition of the soil is specified in the specific test.