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Construction products: Assessment of release of dangerous substances - Guidance on the statistical assessment of declared values - Part 1: Principles and rules of application

Produits de construction - Evaluation de l'émission de substances dangereuses Guide pour l'évaluation de la performance et la vérification de sa constance - Partie 1 : Principes et règles d'application

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TR 16797-1:2015) 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 [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

CEN/TR 16797, *Construction products: Assessment of release of dangerous substances — Guidance on the statistical assessment of declared values*, comprises the following two parts:

— *Part 1: Principles and rules of application* [the present document];

— *Part 2: Technical and statistical background*.

Introduction

The present document provides a brief introduction as to how to declare performance for the potential release, emission and/or content of dangerous substances from or in construction products and gives the principles which underpin the acceptance criteria of test results in relation to a declared value. The main rules of application are introduced, all of which satisfy the given principles.

CEN/TR 16797-2 [1] provides more detailed background and technical explanation together with examples and the statistical justification for the rules of application. The definitions and abbreviations listed in CEN/TR 16797-2:2015, Clause 2 also apply to CEN/TR 16797-1:2015. CEN/TR 16797-2:2015, Annex D contains a model clause and the rules of application introduced in this Part are drafted as normative text that may be copied into or cited by product standards. A recommended solution is to copy the model clause into the product standard and specify the rule of application given in CEN/TR 16797-2:2015, Annex D to be used.

This Technical Report was developed on the basis of experience with the control of release into soil and water. As it is an assessment of data against a declared value regardless of the source of the data, it is the technical view of CEN/TC 351 that these procedures are also valid for the assessment of emission from construction products into indoor air and assessment of gamma radiation from construction products.

It is suggested that all product technical committees follow the principles set out in this CEN Technical Report and it is hoped that all regulators will accept that these principles achieve their objectives with respect to an acceptable AVCP procedure. The rules of application are examples of the ways in which these principles may be applied. There is no obligation on a product technical committee to adopt these rules of application and they are free to determine their own rules of application. The given rules of application may also be used as a benchmark for assessing alternative rules of application.

If product technical committees and producers could streamline their approaches in a way that could be accepted by all regulators, it might support a common understanding on the European market and it might encourage regulators to harmonize their existing different approaches and requirements on reliability and meaning of performance declarations in legislation and enforcement.

1 Scope

This Technical Report provides guidance on the statistical assessment of declared values with respect to the release, emission and/or content of dangerous substances. This Technical Report provides statistically-based criteria for type-testing (TT), further-testing (FT) and where a product has been shown to be consistent with measured values for the release, emission or content that are significantly below the declared values, the point where no-further-testing (NFT) is permitted.

A series of fundamental principles are defined in the present document and two statistical approaches are defined. The first approach is to use assessment by variables and this approach requires the data to be normally or log-normally distributed. This approach is recommended as the default option. The alternative approach based on assessment by attributes is appropriate for data sets that are not normally or log-normally distributed. The downside to this form of assessment is that more test data are needed for the same level of reliability. The present document introduces these assessment procedures and CEN/TR 16797-2 provides more detail and the statistical proof that they satisfy the principles defined in this document. With both of these approaches the minimum frequency of testing is a function of the distance between the mean value and declared value and the variability of the data set, i.e. the sample standard deviation.

To reduce the costs of testing, production plants producing a similar product may share data, e.g. be grouping the product into clusters for statistical assessment of declared values. Rules for the use of clusters are given in CEN/TR 16797-2.

CEN/TR 16797-2 also contains rules for identifying outliers within a data set and guidance on using tests other than the reference method for FT.

A list of tasks for product technical committees is given in CEN/TR 16797-2 as is a model clause for including in product standards and rules of applications that may be cited in the product standard or copied into product standards.

2 Declared values

Any declared value with respect to the potential release, emission and/or content of dangerous substances needs to be justified. This justification is based on either:

— the product conforming to the conditions given in the relevant product standard for a declared value/class based on the without-further-testing concept; or,

— type-testing followed by further-testing at the determined frequency.

Where there is no requirement to carry out a determination, the producer may declare performance for this characteristic as 'NPD' using the ‘no-performance determined’ option.

The Construction Products Regulation [2] defines the ways in which a declaration of performance may be made by the producer. The declared value, or declared class, provides a level of release, emission and/or content that has a low probability of being exceeded in the production. A producer is free to select the value to be declared. The validity of the declared value is assessed using statistical techniques described in this CEN Technical Report using a sufficient number of tests according to a standardized test procedure (the reference test or a combination of tests with the reference test and adequate indirect tests). The declared value applies on the scale of a batch as defined in the product standard. As it is a numerical value it can, where required, be compared directly with a limit value in a regulation or specification. If, in those cases, the declared value is equal to or less than the limit value, the product satisfies the requirement. A product technical committee is also free to introduce classes (as technical classes), but the upper numerical value defining these classes has the same technical meaning as a declared value. The lower numerical limit of the class will be zero.