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Durability of reaction to fire performance - Classes of fire-retardant treated wood-based product in interior and exterior end use applications

Durabilité des performances de réaction au feu - Classement des produits à base de bois ignifugés pour utilisation finale en intérieur et en extérieur

Dauerhaftigkeit des Verhaltens bei Brandeinwirkung - Klassen der mit Feuerschutzmitteln behandelten Holzprodukte für Anwendungen im Innen- und Außenbereich

This Technical Specification (CEN/TS) was approved by CEN on 14 February 2012 for provisional application.

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Foreword

This document (CEN/TS 15912:2012) has been prepared by Technical Committee CEN/TC 175 “Round and sawn timber”, the secretariat of which is held by AFNOR.

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Introduction

Fire-retardant treatments may considerably improve the reaction to fire properties of wood and wood-based products and these may result in wood having the highest fire-resisting characteristics achievable with any combustible product. However, the reaction to fire performance may be reduced by exposure to wet and/or humid conditions [1] and the ability of treatments to continue to perform even when exposed to these conditions needs to be demonstrated.

Two aspects of fire durability of the fire-retardant treatment of wood-based products need to be considered. One is the risk for high moisture content and migration of the fire-retardant chemicals within the wood product and salt crystallisation on the product surface. These hygroscopic properties of the treated wood-based product can be evaluated by exposure to high relative humidity.

The other aspect is the risk for decreased fire performance due to loss of the fire-retardant chemicals by leaching in exterior applications, e.g. facade claddings. Maintained fire performance after weathering needs to be verified.

The Technical Specification is based on a Nordtest standard [15] and on experience from North America [7] [12].

1 Scope

This European Technical Specification describes the characteristics which fire-retardant treated wood products should exhibit so that their fire-retardant properties persist undiminished throughout the desired service life in the anticipated conditions of use.

The Technical Specification prescribes the classification requirements for the durability of the reaction to fire performance of fire-retardant treated wood-based products to be used in interior and exterior end use conditions. The products initially need to meet required reaction to fire classification. For interior and exterior use, limited hygroscopicity needs to be verified. In addition, products for exterior use needs to meet the minimum durability of reaction to fire performance requirements specific to the end use.

The requirements are applicable for fire-retardant treated (applied by penetrating and superficial processes or with film forming or intumescent fire-retardant coatings) solid wood and wood-based products and wood-based products in which the fire-retardant is incorporated during manufacture. The fire-retardant treated products may be coated with an ordinary paint.

Mechanical properties and biological durability of fire-retardant treated wood products are not covered by this European Technical Specification.

Paints, coatings and varnishes intended to improve the reaction to fire performance of a construction product when incorporated in the works, i.e. a building, are covered by ETAG 028 [19].

This Technical Specification may be used as a basis for an approval system.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 927-3, *Paints and varnishes — Coating materials and coating systems for exterior wood — Part 3: Natural weathering test*

EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

3 Terms and definitions

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

3.1
durability of reaction to fire performance
DRF
four classes for the Durability of Reaction to Fire performance are defined:

— **DRF Class ST** for short term use (e.g. less than one year); no durability performance shall be verified;

— **DRF Class INT1** for permanent use in interior applications, service class 1 (e.g. wall and ceiling products);