

FIRE BEHAVIOUR

EU - PRODUCT STANDARD

Accoya wood is part of the scope of EN 14915 'Solid wood panelling and cladding – characteristics, evaluation of conformity and marking'. This harmonised European standard defines solid wood boards for use in panelling and cladding and specifies the relevant characteristics and the appropriate test methods to determine these characteristics in both internal and external use and it provides for the evaluation of conformity and the requirements for marking these products.

One of the properties this standard deals with is the reaction to fire for cladding applications.

This property is one of the entire cladding system: including fasteners, detailing, sub-frame and substrate backing the cavity. This means that it is not possible to classify Accoya on its own.

To avoid testing all possible cladding systems according to EN 13501-1 (single burning item or SBI test), the standard gives guidelines for certain cladding systems that are classified without the need for further testing (table opposite), in which Accoya is classified as Class D, the same class as other softwoods.

PRODUCT	PRODUCT DETAIL	MEAN DENSITY ≥	THICKNESS ≥ TOTAL / MIN.	END-USE CONDITION ^D	CLASS
Panelling / cladding ^a	Wood pieces with or without tongue and	390 kg/m ³	9 / 6 mm	Without air gap or with closed air gap	D-s2, d2
	groove and with or without profiled surface	390 kg/m ³	12 / 8 mm		D-s2, d0
Panelling / cladding ^b	Wood pieces mounted on a support frame	390 kg/m ³	9 / 6 mm	With open air gap ≤ 20 mm behind	D-s2, d0
		390 kg/m ³	18 / 12 mm	Without air gap or with closed air gap	D-s2, d0
Wood ribbon elements	Wood pieces mounted on a support frame	390 kg/m ³	18 mm	Surrounded by open air on all sides	D-s2, d0

^a Mounted mechanically on a wood batten support frame, with the gap closed or filled with a substrate of at least Class A2-s1, d0 with minimum density of 10 kg/m³ or filled with a substrate of cellulose insulation material of at least Class E and with or without a vapour barrier behind. The wood product shall be designed to be mounted without open joints.

^b Mounted mechanically on a wood batten support frame, with or without an open air gap behind. The wood product shall be designed to be mounted without open joints.

^d An open air gap may include possibility for ventilation behind the product, while a closed air gap will exclude ventilation. The substrate behind the air gap shall be of at least class A2 – s1, d0 with a minimum density of 10 kg/m³. Behind a closed air gap of maximum 20 mm and with vertical wood pieces, the substrate may be of at least D – s2, d0.

If certain local regulations or building codes call for it, Accoya can meet higher requirements, by giving it a fire retardant treatment. This can be done by impregnating fire retardant chemicals or applying a fire retardant (intumescent) primer over which a normal coating can be applied.

Since the chemical structure of Accoya is modified, it is possible that the performance of the fire retardant will vary from normal woods. It is therefore important that the fire retardant performance is proven by an independent and accredited body. Please contact your Accsys Technologies Sales Manager for fire retardant treatment options available in your region.

Most fire retardant impregnations significantly reduce the strength of wood due to their moisture absorption properties and the impact of moisture on wood strength. Tests on acetylated wood indicate that its strength is not compromised in a similar manner and therefore dimensions do not have to be reduced in any way.

As with other woods, fire retardant chemicals may have an impact on compatibility and/or performance of coatings, adhesives and other products. These products should be tested first to ensure they will meet end-product performance requirements. Fire retardants should never be used without the prior written approval of Accsys Technologies.

USA - FLAME SPREAD TEST

Southwest Research Institute (SwRI) performed Flame Spread Tests and Smoke Developed Tests in accordance with the standard test method for surface burning characteristics of building materials NFPA 255 (ANSI, UL 723 & UBC 8-1).

The conclusion of the Flame Spread Test results is that Accoya wood can be classified within the range of standard timber species and achieves Class C in this US rating system.

FLAME SPREAD CLASSIFICATION	FLAME SPREAD RATING OR INDEX
Class I (or A)	0 - 25
Class II (or B)	26 - 75
Class III (or C)	76 - 200

These guidelines have been written for professionals wishing to use Accoya to create beautiful, reliable and highly durable end products. Should you require further information or have any comments about this document, please contact Accsys through accoya.com.

WOOD / SPECIES	FLAME SPREAD INDEX*
Lodgepole Pine	93
Accoya	95
Oak	100
Sitka spruce	100
Maple	104
Birch	105
Cottonwood	115

* data source - USDA - United States Dept of Agriculture Wood Handbook. Lower numbers equal a lower flame spread.

WOOD / SPECIES	SMOKE DEVELOPED INDEX*
Yellow Cedar	90
Oak	100
Eastern White Pine	122
Accoya	155
Lodgepole Pine	210
Western Red Cedar	213

* data source - USDA - United States Dept of Agriculture Wood Handbook. Lower numbers equal less smoke.

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AUSTRALIA

Bush fire risk based zoning is a consideration in Australian building regulations. They have been adjusted to include requirements on resistance to bush fire for building constructions on a zonal system from low to high categories, described in the standard AS 3959.

Some species of timber are listed in in Appendix E of this standard:

- Bushfire Resistant Timber
- E1: density 750 kg/m³ or greater
- E2: density 650 kg/m³ or greater

With an average density of 512 kg/m³, Accoya (Radiata Pine) is classified, as other softwoods, outside of these lists.

NEW ZEALAND

New Zealand uses the same fire testing principles as Europe (the so-called room corner test), but has different limits for the classification: the Time To Flashover [s] instead of heat release and fire growth.

Based on indicative cone testing, Accoya is likely to be a group number 4 material, comparable to other softwoods.