

Timber flame retardant specification check-list



Wood Protection Association

Step 1 Specification fundamentals

Before specifying a flame retardant, verify the specification fundamentals:

1.1 What fire performance is required ?

- Euroclass B or C

Note: Classifications according to BS476 Part 6 or 7 (Typically Class O and Class 1) appear in Building Regulations as alternatives to Euroclass classifications but treated wood and wood-based panels with BS 476 classifications are not now widely available.

1.2 What is the service environment?

- internal dry;
- internal humid or,
- external.

Step 2 Verify performance credentials of the product options

What fire performance properties are claimed by the manufacturers of the treatment options being considered?

All performance claims should be independently verified.

Check and establish that the claims made by the manufacturer reflect the performance required in Step 1.1 and the end use service environment in Step 1.2. Full guidance about the different standards and service environments is given in the WPA FR Specification Manual.

The fire performance of materials approved under the WPA Benchmark scheme in the FR Specification Manual are verified by an independent panel of experts.

Step 3 Is performance to Euroclass B or C required?

If performance in accordance with a European Standard is required (typically Euroclass B or C), the following key documents should be obtained to support the choice of treatment:

3.1 Classification Report(s) from a Notified Body in accordance with BS EN 13501.

These will state, based on data from tests to BS EN 13823 and EN ISO 11925, the fire performance of the FR treated timber (e.g. Class B, s1, d0, where 'B' is the class achieved, 's' is the smoke rating and 'd' is the burning droplets rating). This report will also specify a field of application to which the classification applies by defining the species of wood or wood-based material e.g. spruce and the allowed variation in thickness e.g. 12 to 25mm etc.

The thresholds to achieve Euroclass B are higher than for Euroclass C and, therefore, if material achieves a Euroclass B classification then it also conforms to Euroclass C provided there is no change in the field of application as detailed in the Classification report

The WPA strongly recommends that the description of the product given in the classification report is compared with the specification of the components to be used in the project and the design of the structure to ensure the classification in the report can be taken to apply to the material to be used in the project.

(Accompanying Extended Application Reports, see 3.2 below, may allow additional data to support the classification reports applicable to those circumstances).

Continued...

This WPA Check-List provides a simple step by step guide to ensuring that fire retardant treatments for wood and wood based panels are fit for purpose.

Fully comprehensive guidance about the fire protection of wood is available in the WPA FR Specification Manual.



Fitness for purpose check

Always check that the description of the material given in the Classification Report quoted by the manufacturer can be taken to apply to the material to be used in the project. Different species and cross sectional sizes do affect fire performance ratings and require an Extended Application Report – see Example: Fire Classification Scope.

Example: Fire Classification Scope

Example: If a Classification Report refers to Euroclass B, s1, d0 being achieved on 25mm thick spruce boards tested without an air gap on plasterboard, then the product cannot be assumed to confer the same reaction-to-fire performance for:

- Timbers less than 25mm
- Alternative species
- With an air gap
- Backing materials deemed to be of higher risk (in accordance with BS EN 13238)

Always select a flame retardant with a verifiable performance. If no Extended Application Report is available then choose another treatment that is appropriate to the application.

3.2 Extended Application Report

Provides the test evidence and its assessment which defines the product family or range of material and thicknesses, backing materials and air gap, to which a classification report can apply.

For product approval purposes the WPA only accepts classifications and any relevant supporting Extended Application Reports that conform to the principles agreed by The Group of Notified Bodies – Fire Sector Group (SHO2).

Extended Application Reports can minimise the need for fire testing. However, experience of testing materials of different densities indicates that density should not be used as the sole basis for Extended Application Reports especially across species – for example a fire classification for a species of low density cannot be used alone to predict the classification for a different species solely on the basis of its density without fire testing. The practice of Notified Bodies in providing Classification Reports for wood and wood-based materials on the basis of Extended Application Reports is evolving and WPA has proposed a new basis for this to be used at EU level but the association wishes to make it clear that existing Classification Reports from recognised Notified Bodies should be accepted for specification compliance.

Step 4 Is performance to BS 476 Part 7 and/or Part 6 required?

If fire protection in accordance with BS 476 Part 7 and/or Part 6 is required (typically Class 1 or Class 'O') the key documents to examine are the independent test reports that verify the performance to the required standard of treated material similar to that which it is to be specified.

Class 'O' is an artificial class specified in UK Building Regulations requiring a particular performance in both BS 476 Parts 6 and 7. Supplementary reports are sometimes produced to draw together the test data from BS 476 Parts 6 and 7. Although supplementary reports are not normally necessary in regulatory terms, they do provide reassurance about the performance of the treated material.

Note: Treated wood and wood-based panels with BS 476 classifications are not now widely available.

Step 5 Quality Assurance

To be listed in the WPA FR Specification Manual, WPA requires that the manufacture of flame retardant formulations and their application to timber should be under a third party quality assurance scheme, ideally according to ISO 9001.

The WPA Benchmark Scheme for flame retardant treatment of wood and wood-based materials by pressure impregnation has been developed for use as a quality schedule in BS EN 9001. This includes a schedule defining the standard of treatment to be consistently achieved. WPA members who work in accordance with WPA Quality Scheme are listed.

Step 6 If in any doubt, check with the WPA.

The WPA FR Specification Manual covers every aspect of selecting the fire protection for wood and factory produced wood based panels into which flame retardant performance has been incorporated. The Manual also contains details of flame retardant treatments and processors that are approved under the WPA Benchmark quality and performance schemes. Copies may be purchased on line in the publications section of www.wood-protection.org. Designers may also register for the Architects Help-line on the Association's web site www.wood-protection.org and request specific project or material guidance.

IMPORTANT NOTE:

Only Fire Classification Reports from valid Notified Bodies should be relied on to justify specification of a flame resistant formulation or treated material.

IMPORTANT NOTE: BRITISH STANDARDS AND EUROCLASSES

If the specification calls for Class 1 or Class 'O' (or indeed any other BS 476 class) it should be understood that a product having only a Euroclass rating as described in step 3 of this Checklist cannot be taken as being equivalent to Class 1 or Class 'O'; nor in the same way can a BS 476 class be taken as being equivalent to a Euroclass. The two methods of test and interpretation of the results are entirely different.

CAUTION:

SITE APPLIED COATINGS AND LOW VISCOSITY LIQUIDS

Formulations for surface application depend on correct application rates and/or film thicknesses being achieved. When they are applied by brush or spray on site, fire performance can only be assured when application is under an independent certification and accreditation scheme for installers. It is very difficult to achieve the required application rate of low viscosity liquids when applied to vertical surfaces.

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