



Timber

The main flame retardant treatment formulated and applied by Fabric Flare for timber and wood-based products, is 'Duraflam-Duracote'

The Formulation

'Duraflam-Duracote' is a complex mix of ammonium polyphosphates, urea, polyphosphoric acid, organo-phosphate resins, binders, penetrators and an intumescent based retardant. The formulation is virtually colourless and is non-corrosive and non-hygroscopic. 'Duraflam-Duracote' treated products should not migrate under high humidity conditions, nor should the inherent strength of the treated material be reduced by the treatment process.

The System

1. Products for 'Duraflam-Duracote' treatment may first require a period of 'drying' in a baker, with the time taken being determined by material type and the amount of moisture in the product at the time of delivery. The optimum moisture level for treatment is 15 %.
2. Following any initial 'drying' process, the first treatment of 'Duraflam' is carried out via controlled pressure application.
3. Treated products are cured in one of three bakers, depending on size or section length, with temperatures being lowered and increased, as required, to prevent swelling and distortion. The end heat boost acts as a catalyst for the chemical reaction (fixation).
4. Depending on product type, further applications of 'Duraflam' may be necessary to achieve the required degree of flame retardancy.
5. 'Duracote' is then applied via controlled pressure and, when cured, is the sealant for the retardant system.
6. An indicative assessment is conducted, based on the test criteria set out in the relevant standard.



7. The treatment and curing process, via intermittent heat cycles and chemical reaction, takes a minimum of four days and cannot be accelerated. Quantity is not the determining factor, with one item taking as long to treat and cure as one thousand.

Advantages of the System

1. The fully cured treatment is resistant to leaching, enabling treated products to be used in high humidity conditions. Full exterior exposure may eventually result in some reduction of flame retardancy, but at a much slower rate than non-durable treatments. Care should always be taken, however, to protect the treated material prior to installation.
2. Not all wood-based materials are suitable for vacuum impregnation. As the 'Duraflam-Duracote' system is predicated on a chemical reaction and heat curing process, bloom, efflorescence and distortion are minimal.
3. There is no measurable strength loss and product size is not a limiting factor. Cured glulam arches or portals can be treated in much the same way as MDF boards, small softwood sections or blind slats, with application procedures adjusted to suit the characteristics of the substrate.
4. As the process is based on a penetrable retardant system, machining of the top surface after treatment, should not reduce retardancy. Similarly, staining or painting, with water-based products, should not adversely affect flame suppression.

System Performance

Timber and wood-based products can be treated with 'Duraflam-Duracote' to comply with the following:

1. BS 476: Part 7 (Method for classification of the surface spread of flame) Class 1
2. BS 476: Part 6 (Method of test for fire propagation of products) Class 0
3. BS EN 13823 (Reaction to fire tests for building products, excluding floorings, exposed to the thermal attack by a single burning item)



4. BS EN ISO 11925-2 (Reaction for fire tests for building products subjected to a direct impingement of a single flame source)

Testing & Compliance

1. The European construction industry is entering a period of transition due to the progressive implementation of the Construction Products Directive. The introduction of the new pan-European system of fire testing is one consequence. We continue to review our procedures for future product treatment and fire test requirements accordingly.
2. When the treated substrate forms part of a laminate, retardancy of the core is only one section of the composite. Adhesives, surface finishes and lacquers can compromise the overall rating and need to form part of the laminate tested.
3. Although our certification is recognised by most fire prevention authorities, both in the UK and abroad, the assessment of compliance is based on indicative tests which replicate, as far as possible, the criteria for conformity. Therefore, we recommend that treated samples are submitted to accredited laboratories at pre-set intervals, for independent assessment. The combination of results ensures the continuing integrity of both treatment and certification.