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FIRE RETARDANT TREATMENT IN WOOD

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There are many potential uses for wood and wood-based materials where some degree of fire resistance is required. For example, interior finish on walls and ceilings of high fire risk occupancies such as assembly halls, institutional buildings, stores and covered malls, must be fire-rated. Also, some exterior products, such as cedar shake and shingle roofing and lumber for scaffolding, cooling towers, and platforms of offshore drilling rigs, may need to be fire resistant.

The natural combustibility of wood is reduced by treating it with chemicals which, by various mechanisms, reduce the tendency of the material to flame, evolve heat and, ideally, generate smoke when exposed to high temperature and flame. These chemicals are usually water-soluble and may be applied by brushing, spraying, dipping, pressure treatment, or in the case of composites, by mixing the fire retardant with the other components before assembly. However, for heaviest chemical loadings and most effective fire retardancy, a full-cell vacuum-pressure treatment must be specified.

The recent development of improved interior-rated fire retardants with low hygroscopicity and associated reduced chemical blooming and corrosion of fasteners under high humidity conditions should lead to increased specification of fire-retardant wood by architects and builders.

The demand for weather resistant (exterior) fire retardant treatment is also growing with an increased demand for fire-rated wood roofing in the wake of the $50 million Anaheim, California fire in June of 1982.

Fire retardant treatment presents some challenging problems to the treating industry. Generally, the solutions are corrosive and may require special storage tanks, pumps, piping and retort construction. Since high salt loadings are required, treating parameters must be selected to ensure that adequate loadings are attained. However, all indications are that the demand for fire-rated wood-based materials will continue to grow, offering a unique opportunity for the treating industry to expand in this area.