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FIRE RETARDANT COATINGS

Fire retardant coatings will not prevent a fire from starting and they will not put out a fire. They will minimize the effects of flamespread and flashover, reduce the amount of smoke developed and allow additional time to safely evacuate people from an area under fire attack.

Fire retardant coatings are subject to Underwriters' Laboratories testing, rating, and listing. The test used by UL for the rating of fire retardant coatings is UL-723, identical to UL of Canada C-723, NFPA-255, and ASTM E-84. Underwriters' Laboratories define three characteristics of fire retardant coatings: Flamespread, fuel contributed, and smoke developed. Three additional very important characteristics not normally tested by UL are resistance to leaching, scrubability and toxicity of combustion products. Classification ranges for flamespread in the Building Exits Code: Class A 0-25; Class B 26-75; Class C 76-200; Class D 201-500.

The NFPA has not adopted classification ranges for smoke developed; the U. S. Government Department of Defense and the General Services Administration in Federal Specification TT-P-26c, have set a limit of 50 for smoke developed, while setting a flamespread limit of 25. There are no accepted standards for toxicity of the combustion products at this time. Scrubbability properties in accordance with Federal Specification TT-P-266 are not checked nor reported on by UL. These tests are conducted by independent testing laboratories, only when required by the specifier.

Water sensitive salts used in many fire retardant coatings are the "gas formers," which are key factors in the formation of the coatings intumescence under fire exposure. Regardless of the vehicle (either water or solvent) in which the coating is furnished, water sensitive salts are affected by the action of water, either as a result of direct application or merely as a result of moisture contained in the air. Water or moisture will gradually dissolve these water sensitive chemicals or salts in the coating film and they will leach through the coatings film pores and crystalize on the surface or otherwise disappear.

If a fire retardant coating leaches it will gradually lose its fire retardancy, regardless of whether the surface is washed or merely exposed to atmospheric humidity. All latex based intumescent fire retardant coatings will leach if they are not protected with a compatible UL rated water impervious overcoat system. To be effective, the complete system must have been rated together not each item separately.

Some manufacturers, to prevent leaching, use non-water sensitive gas formers or they treat the water sensitive chemicals with waterproofing materials prior to their incorporation in the coating formulation. Federal Specification TT-P-26c provides for a test. UL does not test nor report on leaching performance. Coatings meeting both the scrubability and leaching requirements of TT-P-26c will not lose their fire retardant properties on aging. Such coatings remain effective as long as the coating has not been damaged or physically removed.