



**TECHNICAL BULLETIN #9**

**FLAME SPREAD RATING**

A Flame Spread Rating is a rating assigned to building materials based on data generated by an ASTM (American Society for Testing and Materials) fire test, ASTM E 84\*, “Standard Test Method for Surface Burning Characteristics of Building Materials.” This is one of several fire tests that may be required of building products manufacturers as part of the overall “life safety” issue in building design and construction. This testing is conducted to assure adequate time from the start of a fire for occupants to evacuate.

There are two components of data generated in the ASTM E84 test that are used to determine the Flame Spread Rating:

- 1.) Flame Spread Index: Relative to how far a flame front travels in the test configuration.
- 2.) Smoke Developed Index Relative to smoke obscuration data from the test burn.

The results of the ASTM E 84 testing enable the National Fire Protection Association (NFPA) to assign a letter rating (A, B or C) that can be used to determine suitability of a product for use in a particular location. Those ratings for interior walls and ceilings are:

<b>Class A:</b>	Flame Spread Index = 0 – 25	Smoke Developed Index = 0 - 450
<b>Class B:</b>	Flame Spread Index = 26 - 75	Smoke Developed Index = 0 - 450
<b>Class C:</b>	Flame Spread Index = 76 - 200	Smoke Developed Index = 0 - 450

**REFERENCE STANDARDS:**

<b>Asbestos Cement Board:</b>	Flame Spread Index = 0	Smoke Developed Index = 0
<b>Red Oak Flooring:</b>	Flame Spread Index = 100	Smoke Developed Index = 100

The use of Class A rated paint materials over non-combustible wall and ceiling surfaces such as fire-rated drywall, concrete, masonry, stucco, etc. is sometimes required. It is not feasible, however, for each paint manufacturer to test every base in every product that might possibly be used in occupied areas. Therefore, in addition to considerable independent testing conducted by Porter Paints and other paint manufacturers, the paint industry participated in a Flammability of Paint Study conducted by the National Paint and Coatings Association (NPCA) at Southwest Research Institute Department of Fire Technology, San Antonio, Texas. The test series evaluated a wide variety of paint products and systems on a variety of substrates. The conclusion reached from this study was: “...conventional paints and coatings do not increase the flame spread of either non-flammable or flammable substrates upon which they are applied. It also indicates that any fuel contribution or smoke density increase is insignificant when compared with the contribution of the substrate itself.”\*\* Therefore, on the basis of this testing, all conventional paints and coatings can be assigned a “Class A” rating for use over Class A rated surfaces.

**PORTER PAINTS TEST DATA** (Copies available from the Technical Services Department at the Corporate Offices.)

<b>Porter Products by Order No.</b>	<b>Flame Spread Index</b>	<b>Smoke Developed Index</b>	<b>Resultant Flame Spread Rating***</b>
109 (latex semi-gloss)	5	10	Class A
129 (alkyd satin)	5	10	Class A
689 (latex flat)	5	20	Class A
858 (polyurethane gloss varnish)	5	10	Class A
9370 (polyamide epoxy)	10	20	Class A
3801 (latex sealer)	10	0	Class A
3830 (HVAC acrylic)	5	0	Class A
3830 (on coated duct insulation)	15	5	Class A

It is our experience that the data presented above, along with any required study or test reports, is acceptable to the Fire Marshall or other interested officials as evidence of suitability for application where Class A rating is required. **NOTE: Because conventional architectural paints do not significantly affect the rating of the substrate to which they are applied, they will not upgrade a flammable substrate such as wood to a Class A rating. Special “intumescent” (fire retardant) coatings are designed for this purpose and should be used when such upgrade is required.**

\*This procedure is identical to that used by other testing associations: ANSI No. 2.5; NFPA No. 255; UL No. 723; and UBC No. 42-1.  
 \*\**Flammability of Paint Study*, National Paint and Coatings Association, Inc., 1974 – for a copy of the publication, contact Porter Paints Technical Services Department at the Corporate Offices or on the internet at [www.porterpaints.com](http://www.porterpaints.com).  
 \*\*\*When applied to Class A rated substrates.