



January, 2002
May, 2002

FINAL REPORT
ASTM E 84-01 testing of
ULTRA SEAL™, PERMAKOTE® AND PERMAKOTE PLUS®

Introduction:

The test was conducted in accordance with the American Society for Test and Materials fire test response standard E 84 -01, *Surface Burning Characteristics of Building Materials*, sometimes referred to as the Steiner tunnel test. This test is applicable to exposed surfaces such as walls and ceilings. The test is conducted with the specimen in the ceiling position with the surface to be evaluated exposed face down to the ignition source. The method, which is similar to NFPA No.255 and UL No.723, is an American National (ANSI) Standard and has been approved for use by agencies of the Department of Defense for listing in the DoD *Index of Specifications and Standards*.

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of materials, products, or assemblies under actual fire conditions.

The test samples, selected by the client, were identified as ULTRA SEAL™, PERMAKOTE® AND PERMAKOTE PLUS® white color elastomeric wall coatings. Three test panels, each measuring two feet wide by eight feet in length, were prepared for each sample by adhering the material to 5/8-inch thick USG Firecode Type X gypsum wallboard using the manufacturer's application procedure. Application was made at a nominal thickness of 2 mils. The prepared panels were transferred to storage racks and conditioned 15 days in an atmosphere with the temperature maintained at $71 \pm 2^\circ\text{F}$ and the relative humidity at 50 ± 5 percent. For testing, the panels were placed end-to-end on the ledges of the tunnel furnace and tested with no auxiliary support mechanism. This method of sample preparation is described in Appendix XI of the E 84 standard, Guide to Mounting Methods, Section XI.9.3.

Results:

Test Specimen	Flame Spread Index	Smoke Developed Index
Reinforced Cement Board	0	0
Red Oak Flooring	100	100
ULTRA SEAL™	25	10
PERMAKOTE®	20	5
PERMAKOTE PLUS®	25	5

Testing Performed by: Commercial Testing Company



Observations:

ULTRA SEAL™: Specimen ignition over the burners occurred at 0.67 minute. Surface flame spread was observed to a maximum distance of 4.97 feet beyond the zero point at 1.38 minutes. The maximum temperature recorded during the test was 573°F.

PERMAKOTE®: Specimen ignition over the burners occurred at 0.65 minute. Surface flame spread was observed to a maximum distance of 4.32 feet beyond the zero point at 1.50 minutes. The maximum temperature recorded during the test was 576°F.

PERMAKOTE PLUS®: Specimen ignition over the burners occurred at 0.65 minute. Surface flame spread was observed to a maximum distance of 5.03 feet beyond the zero point at 1.53 minutes. The maximum temperature recorded during the test was 578°F.

Classification:

The Flame Spread Index and Smoke Developed Index values obtained by the ASTM E 84 test are frequently used by code officials and regulatory agencies in the acceptance of interior finish materials for various applications. The most widely accepted classification system is described in the National Fire Protection Association publication NFPA 101 *Life Safety Code*, where:

Class A 0 - 25 Flame Spread Index 0- 450 Smoke Developed Index

Class B 26 - 75 Flame Spread Index 0- 450 Smoke Developed Index

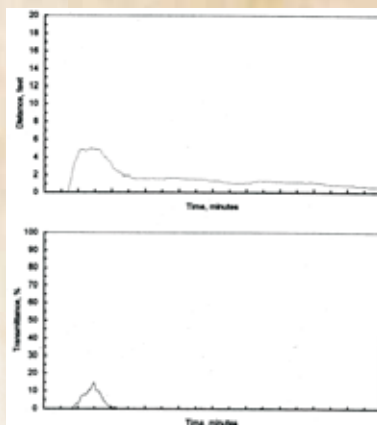
Class C 76 - 200 Flame Spread Index 0- 450 Smoke Developed Index

Class A, B, and C correspond to Type I, II, and III respectively in other codes such as SBCCI, BOCA, and ICBO. They do not preclude a material being otherwise classified by the authority of jurisdiction.

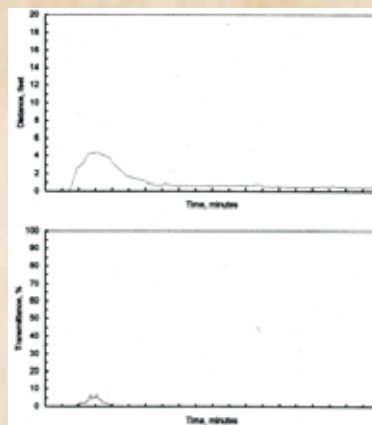
Conclusion:

With the Flame Spread Index's and Smoked Developed Index's measured, ULTRA SEAL™, PERMAKOTE® AND PERMAKOTE PLUS® all Qualify for a Class A Fire Rating under the National Fire Protection Association publication NFPA 101 *Life Safety Code*.

ULTRA SEAL™



PERMAKOTE®



PERMAKOTE PLUS®

