



**FIRE Retardants Inc.**<sup>™</sup>

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## THE DEPARTMENT OF FIRE TECHNOLOGY

ASTM E 84-91a  
STANDARD TEST METHOD FOR  
SURFACE BURNING CHARACTERISTICS  
OF BUILDING MATERIALS

### TEST REPORT

SWRI PROJECT NO: 01-5215-250

MATERIAL ID: BURN BARRIER GLAZE NO. 18  
TILE-LIKE FIRE RETARDANT FINISH

TEST DATE: 9-FEB-1993

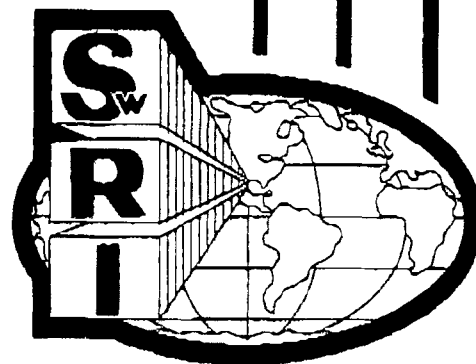
Submitted by:

*Gladys M. Finley*

GLADYS M. FINLEY  
PROJECT LEADER

Prepared for:

FIRE RETARDANTS INC.  
123 Columbia Court North • Suite 201  
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## SOUTHWEST RESEARCH INSTITUTE

Chemistry & Chemical Engineering Division

SAN ANTONIO, TEXAS

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*Alex B. Wenzel*

Alex B. Wenzel  
Director  
Department of Fire Technology



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## INTRODUCTION

This report presents the results of an ASTM E84 test on a specimen submitted by the Client. The test is conducted in accordance with the procedure outlined in ASTM E84-91a, "Standard Test Method for Surface Burning Characteristics of Building Materials," which is similar to the test methods specified in NFPA 255, UL No. 723, ANSI 2.5 and UBC 42-1.

This test method is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period. The test is conducted with the material in the ceiling position.

The purpose of this test is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame Spread and Smoke Developed Indices are reported. However, there is not necessarily a relationship between these two measurements.

For each test, a specimen measuring at least 21-in, wide by 24-ft long is required. The specimen may consist of a continuous, unbroken length, or of sections joined end-to-end. When requested by the client, specimens are prepared at SwRI following the Client's instructions. Unless otherwise indicated by the Client, test specimens are conditioned as appropriate in an atmosphere maintained between 68 and 78°F and 45 to 55% relative humidity.

Immediately prior to the test, the specimen is mounted in the furnace with the side to be tested facing the test flame. Sometimes, because of the nature of the material undergoing testing, additional support (e.g. wire, wire and rods, rods, and/or bars) is used to ensure that the specimen will remain in position during the test. The use of supporting materials on the underside of the test specimen may lower the Flame Spread Index from that which might be obtained if the specimen could be tested without such support, and the test results do not necessarily relate to indices obtained by testing materials without such support.

The flame front position and light obscuration are recorded throughout the 10-minute test and used to calculate the Flame Spread and Smoke Developed indices. The temperature at 24 ft, which was used to calculate the Fuel Contributed Value, is also recorded.

The Flame Spread and Smoke Developed indices reported herein are relative to the results obtained for mineral fiber-reinforced cement board and select grade red oak (moisture content between 6 and 8%). The mineral fiber-reinforced cement board is the calibration material used to obtain 0 values for Flame Spread and Smoke; red oak decks are used to obtain 100 values for Flame Spread and Smoke.

The results apply specifically to the specimens tested, in the manner tested, and not to the entire production of these or similar materials, nor to the performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The following summary pages are not to be used separately, in lieu of the complete final report.

**SWRI Project No. 01-3779-424**

**CLIENT: FIRE RETARDANTS INC. • 123 Columbia Court North • Chaska, MN 55318**

**SWRI PROJECT NO.: 01-5215-250**

**DAILY TEST NO. 1**

**MATERIAL ID\*** BURN BARRIER™ Glaze No. 18 Fire Resistant Tile Like Finish  
**DESCRIPTION\*** Two-component finish applied by roller to 0.25-in. thick glass-reinforced cement board at a nominal spread rate of 400 sq.ft/gallon  
**COLOR\*:** White  
**SUBSTRATE\*:** 0.25-in. thick glass-reinforced cement board  
**SPECIMEN SIZE:** Three 24-in. wide x 8-ft. long sections  
**CONDITIONING TIME:** 7 days at 70°F and 50% relative humidity  
**SUPPORT USED:** None

From Client's material description

**TEST RESULTS**

FLAME SPREAD INDEX: 5

SMOKE DEVELOPED INDEX: 5

**TEST DATA**

FS\* Time Area (Ft\*Mn): 6.4

Smoke Area (X\*Min): 3.4

Unrounded FSI: 3.3

Unrounded SDI: 3.7

**OBSERVATIONS DURING TEST**

IGNITION TIME (Min:Sec) 0:56

MAXIMUM FLAME FRONT ADVANCE (Ft): 0.90

TIME TO MAXIMUM (Min:Sec): 7:10

DRIPPING (Min:Sec): None

FLAMING ON FLOOR (Min:Sec): None

AFTERFLAME TO (Min:Sec): None

AFTERFLAME FLOOR (Min:Sec): None