

# SOUTHWEST RESEARCH INSTITUTE

POST OFFICE DRAWER 28510 6220 CULEBRA ROAD SAN ANTONIO, TEXAS 78284 (512) 684-5111  
DEPARTMENT OF FIRE TECHNOLOGY

## SPREAD OF FLAME TEST ANSI/ASTM E108-78 FIRE TESTS OF ROOF COVERINGS

Project No.: 01-5849-266d Report Date: October 3, 1980  
Sponsor: AmDal Chemical Corporation Date Material Received:  
P. O. Box 31707 May 22, 1980  
Dallas, Texas 75231 Date of Test: June 10, 1980

### TEST PROCEDURE

A test deck was mounted on the framework and the blower adjusted to produce an air current of 12 mph. The test deck, located 33 in. from the air outlet duct, was subjected to a luminous gas flame approximately the width of the deck at its bottom edge. The gas supply was regulated to develop a temperature of  $1300 \pm 50^\circ\text{F}$ , as determined by a No. 16 B&S gauge (1.63-mm) Chromel-Alumel wire thermocouple located 1 in. (25 mm) above the surface and 1/2 in. (13 mm) toward the source of flame from the lower edge of the test deck.

The flame was applied continuously for 4 minutes. The air current was maintained throughout the test and until all evidence of flame, glow, and smoke had disappeared.

### TEST SPECIMENS

The test decks were 3-1/3 ft (1.0 m) wide by 13 ft (3.96 m) long. Nominal 1 x 4-in. No. 2 white pine planks, 3-1/3 ft (1.0 m) long, spaced 2 in. (50.8 mm) apart, were securely nailed to two nominal 2 x 4-in. No. 2 construction grade wood battens located under and flush with the outer edges of the deck. The aged wood shingles were nailed to the wood substrate. A 6-1/2-in. (16.51-cm) length of exposed shingle surface was used in constructing the test decks. Fire retardant was spray-applied, 1800 psi; three coats at approximately 80 ft<sup>2</sup>/gal.

### TEST CONDITIONS

The test decks were stored for 3 days at  $70 \pm 3^\circ\text{F}$  and  $50 \pm 5$ -percent relative humidity prior to testing. Moisture contents, as determined by a moisture meter, were in the range of 8 to 12 percent. The slope of the test deck was 5 in. per horizontal foot. The wind current was 1040 to 1070 ft/min. The ambient temperature was  $90^\circ\text{F}$ .

### TEST RESULTS

#### Specimen No. 1

No flying or falling brands were produced. Slight smoking for 10 seconds after gas flame off. No flame advance.

#### Specimen No. 2

No flying or falling brands were produced. Spotty ignition at 2 to 3 minutes 15 seconds. Smoking for 25 seconds after gas flame off. No flame advance.

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ACCEPTANCE REQUIREMENTS

In the spread of flame test, no flying, flaming brands, nor particles that continue to glow after reaching the floor may be produced. Flaming shall not have spread to the top of the test deck. There shall be no significant lateral spread of flame from the path exposed to the flame.

ACCEPTANCE LEVEL

Class A         
Class C   X  

Class B         
Unacceptable       

FLAME SAFE CHEMICAL CORPORATION

Reported by: E. L. Anderson  
Eugene L. Anderson  
Senior Research Engineer  
Special Projects