

# SOUTHWEST RESEARCH INSTITUTE®

6220 CULEBRA RD. 78238-5166 • P.O. DRAWER 28510 78228-0510 • SAN ANTONIO, TEXAS, USA • (210) 684-5111 • WWW.SWRI.ORG

CHEMISTRY AND CHEMICAL ENGINEERING DIVISION  
FIRE TECHNOLOGY DEPARTMENT  
WWW.FIRE.SWRI.ORG  
FAX (210) 522-3377



Registered to  
ISO 9001:2008

## **NFPA 701–2010, STANDARD METHODS OF FIRE TESTS FOR FLAME PROPAGATION OF TEXTILES AND FILMS (TEST METHOD 2)**

**MATERIAL ID: 300-D POLYESTER**

**FINAL REPORT  
Consisting of 3 Pages**

**SwRI Project No: 01.16049.04.033**

**Test Date: June 29, 2011**

**Report Date: July 22, 2011**

**Prepared for:**

**Undercover  
5 Mourning Dove Lane  
Littleton, CO 80127**

*aj* Prepared by: Alexandra Joyce, Research Engineer

Submitted by:

A handwritten signature in black ink, appearing to read "Christina Gomez".

Christina Gomez  
Research Engineer  
Material Flammability Section

Approved by:

A handwritten signature in blue ink, appearing to read "Matthew S. Blais".

Matthew S. Blais, Ph.D.  
Director  
Fire Technology Department

This report is for the information of the client. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities. This report shall not be reproduced except in full, without the written approval of SwRI. Neither this report nor the name of the Institute shall be used in publicity or advertising.



HOUSTON, TEXAS (713) 977-1377 • WASHINGTON, DC (301) 881-0226

## INTRODUCTION

This report presents the results of a specimen submitted by the Client, and tested at Southwest Research Institute's (SwRI's) Fire Technology Department, located in San Antonio, Texas. The test was conducted in accordance with the procedures outlined in NFPA 701, 2010 Edition, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films* (Test Method 2).

This method is intended for use in determining the resistance of fabrics and films to propagation of flame beyond the area exposed to the source of ignition. This method shall apply to single-layer fabric and multilayer curtain and drapery assemblies while suspended in a vertical configuration. However, where durability to cleaning or weathering is claimed, the fabric or material shall be tested for flame resistance as produced and after being subjected to the applicable cleaning or laundering procedure. The results of this test do not necessarily indicate whether the material tested will resist the propagation of flame under severe exposure or when used in a manner that differs substantially from the test conditions.

Ten individual test specimens shall be cut from a single piece of the material to be evaluated: 125 × 1200 mm (4.90 × 47.25 in.) for flat strips, and 610 × 1200 mm (24 × 47.25 in.) for folds, with the length parallel to the lengthwise direction of the material. Only specimens that cannot be folded shall be tested in the flat configuration.

Each specimen shall be conditioned in an oven at a temperature of 105 °C ± 3 °C for not less than 1 h, and no more than 3 h before testing.

Each specimen is mounted on the support hanger in the test cabinet. The burner is placed 100 mm (3.94 in.) away from the specimen with the center axis of the burner at a 25° angle in line with the bottom of the center of the specimen, and is maintained for a 120 s exposure time.

The afterflame time of the specimen (time of burning of the specimen after the gas flow is turned off) and the time of burning of material that falls to the bottom of the chamber shall be measured and recorded.

The requirements for acceptance of the NFPA 701 (Test Method 2) are:

1. Where fragments or residues of specimens that fall to the floor of the test chamber continue to burn for more than 2 s, the material shall be recorded as failing the test.
2. Where the char length exceeds 435 mm (17.1 in.) for flat specimens or 1050 mm (41.3 in.) for fold specimens, the material shall be recorded as failing the test.
3. Where the afterflame exceeds 2 s, the material shall be recorded as failing the test.
4. Where the specimens do not demonstrate performance in accordance with any of the conditions indicated in the above, the material shall be recorded as passing the test and shall be designated as flame resistant.

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.

**This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment, which takes into account all of the factors, which are pertinent to an assessment of the fire hazard of a particular end use.**

## NFPA 701 TEST REPORT (TEST METHOD 2)

### MATERIAL DESCRIPTION

Material ID/ Trade Name	Description	Composition	Color	Density	Nominal Mass*	Nominal Test Dimensions*
<i>300-D Polyester/ Undercover</i>	300 Denier Polyester Canopy Cover/ Sidewall with Heat Reflective Sil-X™ Coating	300 Denier Polyester, CPAI-84 F/R 6, with Silver Coating	White with Silver Coating	0.9 g/m <sup>2</sup>	26.2 g	0.2 × 125 × 1200 mm

\* Measured by SwRI personnel.

**Preparation:** The specimens were received ready to test on June 10, 2011. The specimens were placed in an oven and maintained at 105 °C for 1–3 h before testing. The specimens were then removed from the conditioning chamber, secured into the test chamber, and tested.

**TEST DATA** - Single Sheets (10 specimens)

**TEST DATE:** June 29, 2011

Specimen No.	Char Length (mm)	Afterflame Time (s)	Burning on Floor (s)	Pass/Fail
1	273	None	None	Pass
2	232	None	None	Pass
3	298	None	None	Pass
4	248	None	None	Pass
5	235	None	None	Pass
6	241	None	None	Pass
7	232	None	None	Pass
8	248	None	None	Pass
9	238	None	None	Pass
10	235	None	None	Pass

### CONCLUSIONS

Based on the test results and the classification criteria, the specimen identified as *300-D Polyester* **meets** the requirements established under the NFPA 701 (Test Method 2).