



# United States Testing Company, Inc.

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## REPORT OF TEST

July 29, 1994

**CLIENT:** BGF Industries, Inc.  
110 Andrew Street  
Greensboro, NC 27406

**PROJECT NO:** 402201

**Attention:** Mr. Bill Schwartz

**SUBJECT:** One sample received on July 1, 1994 and identified by the client as:

Fabric Styles 7781/7782/7783 with 972/973 Finish.  
(Identified on sample as style 7782 972 Finish).

**AUTHORIZATION:** P.O. 0733-0048

**PURPOSE:** The general purpose of the test is to develop data to evaluate synthetic materials when they are subjected to high temperature heating. The test results are to evaluate the potential hazard from toxic gases produced should the material be burned or thermally decomposed in an enclosed area. The data developed include the determination of:

1. Ignition time
2. Burning time
3. Composition of the atmosphere produced.
4. Weight loss of material.

**TEST DATES:** July 22, 1994.

**PREPARED BY**

**SIGNED FOR THE COMPANY BY**

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hb

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PROJECT NO: 402201

DATE: 07/28/94

## PROCEDURE:

The equipment used to burn or thermally decompose the sample material is similar to the equipment formerly employed at the Materials Laboratory of the New York Naval Shipyard and by the Bureau of Mines Central Experiment Station at Pittsburgh for determining the flame resistance of thermosetting plastics. Also as reported in U.S. Testing Company report #83413, for the Bureau of Ships, U.S. Navy and referenced in Military Specification MIL-M-14H and MIL-M-24519B (Navy). The equipment consists of a specimen support, heating coil and spark generators mounted in an essentially gas tight chamber, equipped with facilities for sampling the test atmospheres produced. In brief, the tests are conducted by placing a stick or sticks of the materials to be tested (Sample size - 5" x 1/2" x 1/2") in the center of a heating coil which is situated in the air tight chamber. The heating coil is activated and the number of seconds it takes, from the time the coil is activated until the sample begins to burn is recorded as the ignition time. After the stick has burned for 30 seconds, the heating coil is deactivated, the number of seconds it takes for the sample to stop burning (from the time of deactivation) is recorded as the burning time. When the sample has stopped burning, the atmosphere produced is mixed by an internal circulating fan. A manifold circulating pump is then activated and the atmosphere within the chamber is withdrawn into gas analyzing apparatus.

Because of the nature of the sample, the specimen were rolled into a 1/2" diameter cylinder with a 5" length.

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	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Average</u>
Original Weight, g	13.98	11.96	13.90	15.54	
Residual Weight, g	13.58	11.58	13.49	15.02	
Loss in Weight, g	0.40	0.36	0.41	0.52	0.42
Temperature of Coil	(a)	(a)	(a)	(a)	
Ignition Time, seconds	NO IGNITION				
Heating Time, seconds	420.0	420.2	419.9	420.1	420.1
Temperature of Chamber, °C	29	31	31	31	31
Beilstein	(b)	(b)	(b)	(b)	
Smoke	(c)	(c)	(c)	(c)	
Flame	(d)	(d)	(d)	(d)	
Ash	(e)	(e)	(e)	(e)	

- (a) Equilibrium temperature 649 °C
- (b) Negative
- (c) Very light amount of light grey smoke
- (d) No ignition, no flame
- (e) No ash seen

<u>Composition of Atmosphere</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Avg</u>
Hydrogen Chloride	0	0	0	0	0
Aldehydes as HCHO	0	<1	0	<1	<1
Ammonia	0	0	0	0	0
Carbon Monoxide	40	25	25	40	33
Carbon Dioxide	400	500	400	500	450
Oxides of Nitrogen as NO <sub>2</sub>	8	15	10	15	12
Cyanides as HCN	0	0	0	0	0