



TEXTILE ANALYSIS SERVICE

315 Printing Services Building University of Alberta
Edmonton Alberta Canada T6G 2N1

phone (403) 492-3832
fax (403) 492-4111

Marathon Coatings Technology Ltd.

4529 Eleniak Road
Edmonton, AB
T6B 2N1

Date: 7/8/94
Reference Number: 20-014-25
Invoice/Receipt: M 06598

TEST REPORT

This report contains 4 pages.

ARTICLE TESTED: Three woven fabrics treated by the client with "FR-31 Fire Retardant Fabric Dressing, Ready to use solution at 20% solids in water"

The fabrics are identified as follows:

100% Cotton (blue)
Original Mass: 148 g/sq m
Treated Mass: 180 g/sq m
Net Add-on Mass, dry: 21.3%

65% Polyester/35% Cotton blend (blue & white stripe)
Original Mass: 160 g/sq m
Treated Mass: 188 g/sq m
Net Add-on Mass, dry: 18.0%

100% Polyester (pink)
Original Mass: 148 g/sq m
Treated Mass: 173 g/sq m
Net Add-on Mass, dry: 16.8%

TESTING REQUESTED: The fabrics were to be evaluated for flame resistance.

TEST METHODS: CAN/CGSB-4.2-M77 Textile Test Methods

No. 27.1 - M87

Flame Resistance - Vertical Burning Test

NOTE: The fabrics were tested as received from the client. The test results apply only to the fabrics tested.

About this Textile Analysis Service Report:

The findings of this report were made by experienced analysts using modern laboratory facilities. It is assumed that the information supplied by the client before analysis was valid and complete.

The report is considered to be the privileged information of the client (person/agency requesting the analysis). Textile Analysis Service will not release details, or copies, of the report without the permission of the client.

Notwithstanding the above, the contents of the report are not to be abstracted (summarized) or reproduced in part without the written permission of the Textile Analysis Service. The report may be reproduced in whole.

TEST RESULTS: CAN/CGSB-4.2-M77 No. 27.1-M87 Flame Resistance - Vertical Burning Test

Ignition Flame application Time: 12 seconds

Specimen Condition: Dried in an oven at 105°C for 1 hour prior to testing.

Sample: 100% cotton (148 g/sq m) treated with "FR-31 Fire Retardant Fabric Dressing"
net add-on mass (dry) = 21.3%; treated fabric mass: 180 g/sq m (5.3 oz/sq yd)

Specimen	Occurance of Flash	Duration of Afterflame (Sec)	Duration of Afterglow (Sec)	Length of Damaged Area (mm)	Observations of Burning
Warp					The specimens briefly ignited. Very light smoke was produced. Afterglow occurred at the flame impingement point and did not extend beyond char area.
1	-	0.0	0.5	73	
2	-	0.0	0.5	87	
3	-	0.0	0.5	71	
Filling					
1	-	0.0	0.5	86	
2	-	0.0	0.5	74	
3	-	0.0	0.5	85	
Average	none	0.0	0.5	79	

Evaluation of Flame Resistance:

In general, a high degree of flame resistance of a textile product is indicated by the following behavior when a fabric is subjected to the Vertical Burning Test (No. 27.1):

1. No flash occurs at any time over the length of the test specimen.
2. The average duration of afterflame does not exceed 2.0 seconds.
3. Afterglow does not extend beyond the area originally charred by the flame.
4. The average length of the damaged area does not exceed 90 mm.

According to these requirements, the fabric tested shows a high degree of flame resistance.

NOTE: The test results reported apply only to the fabric sample tested. The fabric was tested as it was received from the client.

TEST RESULTS: CAN/CGSB-4.2-M77 No. 27.1-M87 Flame Resistance - Vertical Burning Test

Ignition Flame application Time: 12 seconds

Specimen Condition: Dried in an oven at 105°C for 1 hour prior to testing.

Sample: 65/35 polyester/cotton (160 g/sq m) treated with "FR-31 Fire Retardant Fabric Dressing"
net add-on mass (dry) = 18.0%; treated fabric mass: 188 g/sq m (5.3 oz/sq yd)

Specimen	Occurance of Flash	Duration of Afterflame (Sec)	Duration of Afterglow (Sec)	Length of Damaged Area (mm)	Observations of Burning
Warp					The specimens briefly ignited. Light grey smoke was produced. Afterglow occurred at the flame impingement point and did not extend beyond char area.
1	-	0.0	0.5	72	
2	-	0.0	0.5	96	
3	-	0.0	0.5	75	
Filling					
1	-	0.0	0.5	85	
2	-	0.0	0.5	85	
3	-	0.0	0.5	71	
Average	none	0.0	0.5	81	

Evaluation of Flame Resistance:

In general, a high degree of flame resistance of a textile product is indicated by the following behavior when a fabric is subjected to the Vertical Burning Test (No. 27.1):

1. No flash occurs at any time over the length of the test specimen.
2. The average duration of afterflame does not exceed 2.0 seconds.
3. Afterglow does not extend beyond the area originally charred by the flame.
4. The average length of the damaged area does not exceed 90 mm.

According to these requirements, the fabric tested shows a high degree of flame resistance.

NOTE: The test results reported apply only to the fabric sample tested. The fabric was tested as it was received from the client.

TEST RESULTS: CAN/CGSB-4.2-M77 No. 27.1-M87 Flame Resistance - Vertical Burning Test

Ignition Flame application Time: 12 seconds

Specimen Condition: Dried in an oven at 105°C for 1 hour prior to testing.

Sample: 100% polyester (148 g/sq m) treated with "FR-31 Fire REtardant Fabric Dressing"
net add-on mass (dry) = 16.8%; treated fabric mass: 173 g/sq m (5.1 oz/sq yd)

Specimen	Occurance of Flash	Duration of Afterflame (Sec)	Duration of Afterglow (Sec)	Length of Damaged Area (mm)	Observations of Burning
Warp					The specimens ignited and a sputtering flame was observed during the test. The fabric melted, dripping of molten polymer occurred on 4 of the 6 test specimens.
1	-	0.0	0.0	84	
2	-	0.0	0.0	82	
3	-	0.0	0.0	80	
Filling					
1	-	0.0	0.0	67	
2	-	0.0	0.0	67	
3	-	0.0	0.0	74	
Average	none	0.0	none	76	

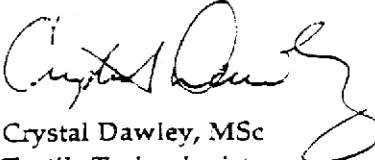
Evaluation of Flame Resistance:

In general, a high degree of flame resistance of a textile product is indicated by the following behavior when a fabric is subjected to the Vertical Burning Test (No. 27.1):

1. No flash occurs at any time over the length of the test specimen.
2. The average duration of afterflame does not exceed 2.0 seconds.
3. Afterglow does not extend beyond the area originally charred by the flame.
4. The average length of the damaged area does not exceed 90 mm.

According to these requirements, the fabric tested shows a high degree of flame resistance. The melting and dripping of this fabric when exposed to flame may be of concern.

NOTE: The test results reported apply only to the fabric sample tested. The fabric was tested as it was received from the client.


Crystal Dawley, MSc
Textile Technologist