

**PROTECTIVE CLOTHING LABORATORY DATA SHEET  
NFPA 1971: Thermal Protective Performance Test**

**CLIENT:** AquaTex

**SAMPLE LOG NO.(S):** 1999-07-8782

**PRODUCT NAME/MODEL/DESCRIPTION:** Quilted Aramid

**JOB NO.:** J99018395

**REFERENCE:** NFPA 1971 (1997 edition), Section 5-1.1 (garment), 5-3.1(glove), 5-3.2 (wristlet & gauntlet), 5-5.2 (hoods), 5-6.1 (wristlet interface), and 6-10.

**SAMPLE TYPE:** Garment

**CONDITIONING:** In accordance with Section 4 of FTMS 191A at a temperature  $21EC \pm 3EC$  ( $70EF \pm 5EF$ ) and a relative humidity of  $65\% \pm 5\%$  until equilibrium is reached or for at least 24 hours, whichever is shorter.

**TYPE OF GAS USED:** LP

**NO. OF LAYERS:** 1

**ORDER OF LAYUP:** N/A

	PRIOR TO CONDITIONING			AFTER CONDITIONING*		
	SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 1	SAMPLE 2	SAMPLE 3
<b>Sample Thickness (mils)</b>	70	69	69	79	83	70
<b>Sample Weight (g)</b>	10.2	10.5	10.1	33.0	40.6	39.0
<b>Sample Area Weight (oz/yd<sup>2</sup>)</b>	12.9	13.2	12.7	41.6	51.2	49.1

	PRIOR TO CONDITIONING				AFTER CONDITIONING*			
	1	2	3	AVG.	1	2	3	AVG.
<b>TPP RATING (cal/cm<sup>2</sup>)</b>	27.6	26.8	26.8	27.1	>60	>60	>60	>60
<b>INDIVIDUAL DEVIATION FROM AVG. TPP (%)</b>	1.8	1.1	1.1		N/A	N/A	N/A	

\*As per the clients request, the samples were conditioned as follows: 5 min. immersion in cold tap water, squeeze excess off, wipe off inner layer.

**NOTE:** Thickness' and weights were taken after conditioning

**TEST DATE:** 07/19/99

**TECHNICIAN:** Kristen Kennedy

**PROTECTIVE CLOTHING LABORATORY DATA SHEET**  
**NFPA 1971: Thermal Protective Performance Test**

**CLIENT:** AquaTex

**SAMPLE LOG NO.(S):** 1999-07-8782

**PRODUCT NAME/MODEL/DESCRIPTION:** Quilted Aramid Composite

**JOB NO.:** J99018395

**REFERENCE:** NFPA 1971 (1997 edition), Section 5-1.1 (garment), 5-3.1(glove), 5-3.2 (wristlet & gauntlet), 5-5.2 (hoods), 5-6.1 (wristlet interface), and 6-10.

**SAMPLE TYPE:** Garment

**CONDITIONING:** In accordance with Section 4 of FTMS 191A at a temperature  $21EC \pm 3EC$  ( $70EF \pm 5EF$ ) and a relative humidity of  $65\% \pm 5\%$  until equilibrium is reached or for at least 24 hours, whichever is shorter.

**TYPE OF GAS USED:** LP

**NO. OF LAYERS:** 1

**ORDER OF LAYUP:** N/A

**NOTE:** As per the client's request, the samples were tested after conditioning only.

	PRIOR TO CONDITIONING			AFTER CONDITIONING*		
	SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 1	SAMPLE 2	SAMPLE 3
<b>Sample Thickness (mils)</b>	N/A	N/A	N/A	106	110	113
<b>Sample Weight (g)</b>	N/A	N/A	N/A	44.2	44.8	45.7
<b>Sample Area Weight (oz/yd<sup>2</sup>)</b>	N/A	N/A	N/A	55.7	56.4	57.6

	PRIOR TO CONDITIONING				AFTER CONDITIONING*			
	1	2	3	AVG.	1	2	3	AVG.
<b>TPP RATING (cal/cm<sup>2</sup>)</b>	N/A	N/A	N/A	N/A	>100	>100	>100	>100
<b>INDIVIDUAL DEVIATION FROM AVG. TPP (%)</b>	N/A	N/A	N/A		N/A	N/A	N/A	

\*As per the clients request, the samples were conditioned as follows: 5 min. immersion in cold tap water, squeeze excess off, wipe off inner layer.

**NOTE:** Thickness' and weights were taken after conditioning

**TEST DATE:** 07/27/99

**TECHNICIAN:** Kristen Kennedy

**PROTECTIVE CLOTHING LABORATORY DATA SHEET**  
**NFPA 1971: Cleaning Shrinkage Resistance Test**

**CLIENT:** AquaTex

**SAMPLE LOG NO.(S):** 1999-07-8782

**PRODUCT NAME/MODEL/DESCRIPTION:** Quilted Aramid

**LTO NO.:** J99018395

**REFERENCE:** NFPA 1971 (1997 edition), Sections 5-1.17 (Garment), 5-5.6 (hoods), 5-6.5 (garment wristlets), and 6-25.

**PRE-CONDITIONING:** In accordance with Section 4 of FTMS 191A at a temperature  $21^{\circ}\text{C} \pm 3^{\circ}\text{C}$  ( $70^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ) and a relative humidity of  $65\% \pm 5\%$  until equilibrium is reached or for at least 24 hours, whichever is shorter.

**TEST CONDITION:** Five cycles of Machine Cycle 1, Wash Temperature V, & Drying Procedure Ai of ANSI/AATCC 135.

**SAMPLE TYPE:** Garment

SAMPLE NO.	1			2			3			AVG.
	1	2	3	1	2	3	1	2	3	
MEASUREMENT NO.										
PRE-TEST LENGTH (cm)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
POST-TEST LENGTH (cm)	23.6	23.7	23.6	23.8	23.9	23.8	24.1	24.0	23.9	23.8
% CHANGE IN LENGTH	5.6	5.2	5.6	4.8	4.4	4.8	3.6	4.0	4.4	4.7
PRE-TEST WIDTH (cm)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
POST-TEST WIDTH (cm)	23.8	23.8	23.8	23.8	23.6	23.8	23.8	23.6	23.7	23.7
% CHANGE IN WIDTH	4.8	4.8	4.8	4.8	5.6	4.8	4.8	5.6	5.2	5.0

**CONCLUSION:**

**COMPLIANT**

**TEST DATE:** 08/12/99

**TECHNICIAN:** Kristen Kennedy

**PROTECTIVE CLOTHING LABORATORY DATA SHEET**  
**ASTM F1939 Radiant Protective Performance of Flame Resistant Clothing Materials**

**CLIENT:** AquaTex

**SAMPLE LOG NO.(S):** 1999-07-8782

**PRODUCT NAME/MODEL/DESCRIPTION:** Quilted Aramid

**JOB NO.:** J99018395

**REFERENCE:** ASTM F1939 modified per the clients request

**CONDITIONING:** 5 minutes immersed in cold tap water, squeeze excess off, wipe off inner layer

**RADIANT HEAT LOAD:** 0.1 cal/cm<sup>2</sup> x sec.

<b>SAMPLE NO.</b>	<b>TIME TO 19°C TEMP. RISE (sec)</b>	<b>TIME TO 31°C TEMP. RISE (sec)</b>
<b>1</b>	149.4	243.2
<b>2</b>	153.2	253.8
<b>3</b>	153.0	256.2
<b>4</b>	168.8	287.8
<b>5</b>	137.1	240.7
<b>AVG.</b>	152.3	256.3

**TEST DATE:** 08/03/99

**TECHNICIAN:** Kristen Kennedy

**PROTECTIVE CLOTHING LABORATORY DATA SHEET**  
**NFPA 1971: Flame Resistance Test One**  
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**CLIENT:** AquaTex

**SAMPLE LOG NO.(S):** 1999-10-13320

**PRODUCT NAME/MODEL/DESCRIPTION:** Quilted Composite

**LTO NO.:** 99018395

**SEI REFERENCE NO:** N/A

**PRECONDITIONING:** None

**REFERENCE:** NFPA 1971 (1997 edition), Section 5-2.10 and 6-2; FTMS 191A Method 5903.1.

**CONDITIONING:** In accordance with Section 4 of FTMS 191A at a temperature of 70°F ± 5°F (21°C ± 3°C) and a relative humidity of 65% ± 5%.

**LOADS FOR DETERMINING CHAR LENGTH:**

**SAMPLE WEIGHT (oz/yd<sup>2</sup>):** 15.5

OUNCES PER SQUARE YARD	TEARING WEIGHT (lb)
2.0 - 6.0	0.25
<b>Over 6.0 - 15.0</b>	<b>0.50</b>
Over 15.0 - 23.0	0.75
Over 23.0	1.00

**WARP/WALE/MACHINE DIRECTION:**

SPECIMEN NUMBER	1	2	3	4	5	AVG.
<b>AFTERFLAME (sec)</b>	.39	1.0	1.80	2.09	1.25	1.50
<b>CHAR LENGTH (in)</b>	1.625	1.75	1.50	1.0	1.25	1.50
<b>DRIP (yes or no)</b>	No	No	No	No	No	
<b>MELT (yes or no)</b>	No	No	No	No	No	

**FILL/COURSE/CROSS MACHINE DIRECTION:**

SPECIMEN NUMBER	1	2	3	4	5	AVG.
<b>AFTERFLAME (sec)</b>	1.48	.69	.81	3.23	2.39	1.50
<b>CHAR LENGTH (in)</b>	1.25	1.375	1.25	1.375	1.0	1.25
<b>DRIP (yes or no)</b>	No	No	No	No	No	
<b>MELT (yes or no)</b>	No	No	No	No	No	

**PROTECTIVE CLOTHING LABORATORY DATA SHEET**  
**NFPA 1971: Flame Resistance Test One**  
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**PRECONDITIONING:** 5 Cycles of washing and drying in accordance with the procedure specified in Machine Cycle 1, Wash Temperature V, Drying Procedure A1 of AATCC 135. A 1.82 kg ± 0.1 kg (4.0 lb ± 0.2 lb) load was used.

**CONDITIONING:** In accordance with Section 4 of FTMS 191A at a temperature of 70°F ± 5°F (21°C ± 3°C) and a relative humidity of 65% ± 5%.

**LOADS FOR DETERMINING CHAR LENGTH:**

**SAMPLE WEIGHT (oz/yd<sup>2</sup>):** 17.3

OUNCES PER SQUARE YARD	TEARING WEIGHT (lb)
2.0 - 6.0	0.25
<b>Over 6.0 - 15.0</b>	<b>0.50</b>
Over 15.0 - 23.0	0.75
Over 23.0	1.00

**WARP/WALE/MACHINE DIRECTION:**

SPECIMEN NUMBER	1	2	3	4	5	AVG.
AFTERFLAME (sec)	.93	2.09	2.31	1.03	2.58	2.0
CHAR LENGTH (in)	1.25	1.125	1.375	1.50	1.00	1.25
DRIP (yes or no)	No	No	No	No	No	
MELT (yes or no)	No	No	No	No	No	

**FILL/COURSE/CROSS MACHINE DIRECTION:**

SPECIMEN NUMBER	1	2	3	4	5	AVG.
AFTERFLAME (sec)	.96	.68	2.17	1.07	2.03	1.50
CHAR LENGTH (in)	1.25	.75	.75	1.375	1.5	1.125
DRIP (yes or no)	No	No	No	No	No	
MELT (yes or no)	No	No	No	No	No	

**CONCLUSION:**            **COMPLIANT**

**TEST DATE:** 10/20/99

**TECHNICIAN:** Jack